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SPECIAL NOTICE

In the respective following issues of the Municipal Journal and Engineer considerable space will be devoted specially to the subjects as indicated:—

—1906—

October 3d - - - FIRE AND POLICE

November 7th - - - LIGHTING

—Gas, Electricity, Etc.

December 5th - - - BRIDGES

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CONTENTS

A Problem in Fire Protection	Fire Equipment and Supplies
Automobiles and	Municipal Buildings
Pavement Foundations	Bridges
Concerning Contract Prices	Street Railways
Meat Inspection Ordinance	Miscellaneous
Sewage Filtration	In the Market
Municipal News	Contract Prices
In Other Lands	Lowest Bids Received
Personals	Convention Notes
Correspondence	Calendar of Municipal and
Some Unusual Fires	Allied Societies
THE WEEK'S	Who's Who in
CONTRACT NEWS	Municipal Work
Bids Asked for	Legal Decisions—
Street Improvements	A Summary and Notes of
Roads	Recent Decisions
Sewerage	Book Reviews
Water Supply	Incorporations
Lighting and Electricity	Trade Notes

A Problem in Fire Protection

THE two greatest fires which have occurred in North and South America, respectively, owed the extent of their ravages to the absence of water for fighting them, which was in each case due to the breaking of water mains by earthquake. The reservoirs of the San Francisco supply seem to have suffered little if any damage, but this fact was of little benefit at the time, as water escaped ineffectively from the mains at scores of places, destroying the pressure. One of the effects of these fires has been to make insurance companies even more insistent than before on adequate water supply under penalty of advanced rates. In most parts of the country this demand is amply met by ordinary methods, especially by introducing auxiliary high-pressure systems, as is being done in the larger and in several of the smaller cities. But wherever occasional earthquake shocks may occur, no thickness of shell of cast-iron pipes will prevent their rupture, and the question arises, What provision can be made in material

of mains or otherwise to insure continuance of abundant supply? Can a pipe be found which earthquake shocks will not break; or can some method be devised which will make the fire-fighting supply independent of the pipe lines? Wood-stave pipe, and the old-fashioned fire cisterns located throughout the city are two suggestions for meeting the difficulty, although both at first sight present serious objections. But we believe that some solution of the problem, if it really is solved, may be found along one or both of these lines.

Automobiles and Pavement Foundations

WHAT effect the rapidly increasing use of automobiles will have on street pavements is a question which many are asking, among both the users of pavements and the builders of them. The almost incredible growth in the number of motor vehicles using city streets and country roads will, if it continues permanent, undoubtedly call for changes of some kind; and it behooves those responsible for the laying of new paving to foresee these demands and make provision for them. This is especially true of the foundation, because this is expected to outlast several surface layers. The use of motors permits of much greater tractive power than two horses can furnish, and hence of heavier loads on the wheels; and such heavy loads are now common in all the large cities, and increasingly so in the smaller ones. Heavy loads naturally call for stronger foundations, and it would seem to be desirable for those cities which still use gravel or 3 or 4-inch concrete to abandon such use at once.

Concerning Contract Prices

IN the Contract News columns this week will be found a tabulated statement of the prices at which a number of contracts have been let recently. The novel feature of the table is the presentation of data concerning such conditions as probably had the most effect upon the fixing of the prices. The bare statement that so much was bid for laying an 8-inch sewer is of little value to any one not conversant with the locality, depth of trench, and certain other conditions. To give *all* these conditions for each contract is manifestly impracticable; but, on the other hand, to give none of the conditions deprives the information of most of its value. It has been our aim to obtain and present such data as seemed to be most important and most probably obtainable. We would consider it a favor if all our readers who are interested in such matters would frankly criticize this method of presentation, offering suggestions for improving it. We would also like to receive, for the general good, all the data possible along these lines.

MEAT INSPECTION ORDINANCE

Stringent Regulations of Montgomery, Ala.—Duties of City Physician and Inspectors—The Condemning of Cattle—How Slaughtered

IN a recent number of the MUNICIPAL JOURNAL appeared a reference to the meat inspection ordinance of Montgomery, Ala., which has excited considerable interest among our readers, several of whom have written for further information thereon. The ordinance is too long for reproduction in our pages, but we give herewith an abstract, setting forth its general provisions:

No slaughtering shall be done in a building less than two stories high; the floors to be of t. and g., 1 $\frac{3}{8}$ -inch boards, or of 2-inch boards calked. Rendering room to have cement floor, rendering tanks, fertilizer press and fertilizer dryer and evaporator, all of capacity of a full day's slaughter, run by ample machinery and well ventilated. Sheds and pens to be provided for three days' supply of stock for slaughter. Rendering and dry rooms so arranged as to be cut off from slaughter house, which shall have hoisting apparatus and blood vats. All slaughtering to be done on the upper floor, and all work to be satisfactory to the City Engineer and City Physician.

The Mayor shall appoint an Inspector and assistant inspectors of meat, milk and perishable foods (terms, two years), subject to examination by the City Physician and under his supervision; at least one shall be a bacteriologist, microscopist and analytical chemist; salary, \$960 each. They shall inspect all animals before slaughtering; also the carcasses and vital organs; all freshmeats brought to the city for sale; also milk and vegetables from time to time; these to be held three hours for inspection by owners, if desired. No fresh meat to be sold not having attached dated certificate of inspection. Certificates are printed in books containing stubs showing date of issuance, name of recipient, kind of animal, amount collected thereon, and name of inspector. The fee for inspection is 10 cents for each animal inspected, 10 cents for each dressed animal or part thereof brought into the city. The City Physician shall inspect weekly every slaughter house and suggest to the City Council needful rules and regulations.

There may be charged for slaughtering cattle, 50 cents each; suckling calves, hogs, sheep and goats, 25 cents each, or 15 cents each for over three; for pennaage per day, 10 cents each for cattle, 5 cents each for hogs, sheep or goats. Condemned animals to have placed in the ear a metal tag bearing serial number and stamped, "Condemned, Montgomery, Ala.," and be marked "condemned" with yellow paint in letters 4 inches or more high, and be placed in separate pens, to be removed only by inspector and killed under his supervision. Pregnant animals not to be killed for food for ten days after gestation. Condemnation may be for hog cholera, swine plague, anthrax, rabies, malignant epizootic catarrh, pyemia and septicemia, mange or scab in advanced stages,

actinomycosis (lump jaw) in advanced stages, inflammation of the lungs, intestines or peritoneum, Texas fever, tuberculosis, extensive or generalized, pregnancy, advanced or recent, carcinomas or malignant sarcomas, or any tumors or any disease or injury unfitting the flesh for human food. Diseased or bruised parts only may be cut away and condemned if balance of carcass is not affected.

Carcasses condemned shall be tagged and the sides, shoulders and quarters slashed and mutilated, and so rendered, with head and organs, as to be unfit for human food. Stubs of condemnation tags to be removed by inspector when carcass is placed in rendering tank and returned to office. Animals passed for slaughtering shall have placed in the ear a metal tag bearing serial number and words, "Montgomery, Ala." All animals must remain in the stockyards at least thirty-six hours before slaughtering. Instructions for the microscopic examination of parts are given. Carcasses affected by trichinae may be rendered into edible lard at not less than 150 degrees Fahr., or made into cooked products.

All meats shall be transported in closed wagons, thoroughly cleansed daily; shall be inspected by market clerk for approval tag before being placed on sale. The City Physician may fix hours and places for inspection of animals and meat; may seize, condemn and confiscate any emaciated, tainted, putrid, decayed, decaying, unwholesome or diseased meat; also maimed or diseased animals or those too young to be used as food, it being unlawful to keep any such or any untagged meat. Farmers bringing meat into the city shall have attached to them intact the heart, liver, lungs and tongue, and bring them to the designated place for inspection, between 6 and 9 a. m. Fine for violation of any provision of the ordinance, from \$1 to \$100.

SEWAGE FILTRATION

Double Processes and Their Classification—Results Obtained by Preparatory Treatments—Contact and Sprinkling Filters—Experiments

AN admirable feature of the experiments recently conducted at Columbus, Ohio, which were described in the Sewage number of THE MUNICIPAL JOURNAL, on May 2, was the study of each process not as complete in itself, but as to its fitness to precede or follow some other process.

Scott-Moncrieff, in his "cultivation filters" in 1898, demonstrated that bacterial action could to advantage be carried on in several (nine in certain experiments) consecutive stages, and Rideal recognizes three distinct functions served by the various classes of bacteria; while there has been a general recognition in recent years of two kinds of bacterial action, aerobic and anaerobic. But sufficient recognition has not been given to the fact that all fine-grain filters work most satisfactorily when treating clear liquid, and that suspended matter, whether the clay in river waters or the mineral and organic matters in sew-

age, should be first removed and disposed of by some other means, leaving as the duty of the fine-grain filter only the oxidation of the matter in solution and the completion of the reduction of the bacterial contents. These experiments were largely devoted to determining what processes were best adapted to effecting this removal of the suspended matter, consideration being had not only of the efficiency of the primary process itself, but also of the fitness of the effluent therefrom for final sand filtration or other secondary treatment. In the study of this, four kinds of suspended matter were recognized, viz., mineral, organic in visible particles, colloidal matter, and fats; the third being defined as "those suspended particles in sewage which can not be removed by plain subsidence in a reasonable and economical period of time," existing "in a state of pseudo solution or micro-suspension." It is the purpose of the grit chamber to remove the first class, and this only; the second and fourth classes are removed to a considerable extent by contact filters, sedimentation tanks, and chemical precipitation, and are partly retained, partly gassified, and partly changed into colloidal matter, by septic tanks; the colloidal matter remains in the finishing filter or else is to a large degree discharged with the effluent.

It is to be hoped that future investigations will discover a process for the economical removal of this colloidal matter, which, because of its microscopical size, penetrates fine-grain filters and clogs them to a considerable depth. Fats also are responsible for much of the clogging in these, and the primary processes now in use are but fairly effective in removing them, the coke strainers at Columbus leaving 23 per cent. in the effluent, sedimentation 50 per cent., and the best septic tanks 41 per cent.

The average removal of suspended and total organic matter by the several preparatory treatments was as follows:

KIND OF TREATMENT	Nominal Capacity in Hours' Flow	Percentage Removal of Suspended Matter		Percentage Removal of Total Organic Matter	
		Total	Volatile	Nitro- genous	Carbon- aceous
Grit chamber (plain sedimentation at high velocities).....	.3	22	19	10	6
Grit chamber (plain sedimentation at low velocities).....	1.5	34	29	19	15
Plain sedimentation.....	6.0	63	54	30	26
" ".....	8.0	66	58	31	31
Septic tanks.....	8.0	61	51	29	24
" ".....	16.0	66	60	35	32
" ".....	24.0	67	62	36	36
Chemical precipitation.....	8.0	81	88	53	52
Coke strainers.....	8.0	80	77	53	33

Coke strainers and chemical precipitation are seen to have been the most effective; but the expense and objectionable odors involved in drying coke preparatory to

burning, with the large amounts of coke involved (2,000 cubic yards a year for each 1,000,000 gallons a day) decided the Columbus investigators against this; while the enormous increase in sludge resulting from the applied chemicals and the cost of these are well realized objections to chemical precipitation, in addition to which these experiments indicated that hydrate carried by the effluent onto sand filters caused an excessive amount of deep and persistent clogging.

The experiments with contact filters do not seem to have been as successful as many conducted in England during the past few years, and the sprinkling filters (otherwise known as "Intermittent Continuous," "Continuous," "Trickling" or "Percolating"), which are in many respects similar, were preferred because these tests seemed to show that a rate of treatment could be maintained in them three times as great as in contact filters, and give an effluent more uniformly unputrescible, with the added advantage that entire removal of the filtering material would apparently not be required so frequently. This last advantage, and the higher rate possible, are due to the fact that clogging is to a large extent avoided by the peculiar working of the filter. "As the sewage percolates through the filter much of the suspended matter is deposited upon the surface of the particles of filtering material and thin gelatinous films are formed about the grains of material. As in contact filters it is these films which play an important part in the purification effected by the filter, due to their power of removing by adsorption a certain proportion of the dissolved organic matters contained in the sewage and of acting as oxygen carriers.

"Largely due to the predominance of aerobic conditions within sprinkling filters, the deposited organic matter is gradually oxidized to a condition in which it has lost the power in a large measure of adhesion to the particles of filtering material. During periods of rest the oxidation of deposited matters is very rapid and coincident with the efficient drying out which is afforded the filter under favorable weather conditions. Due to these causes, when operation is again resumed, the films of stable suspended matter crack, peel and are washed from the filters to the temporary detriment of the appearance of the effluent, but to the ultimate benefit of the filter. The removal from the filter in this manner of the deposited suspended matter means a less frequent removal of filtering material on account of clogging, as compared with contact filters in which no such unloading takes place. As the sewage passes through the filter constant contact of the sewage with the air is conducive to the highest degree of aerobic bacterial activity."

An objection to sprinkling filters would seem to be in the odors, caused probably by the gases released during the spraying; this being the only one of the several processes which gave off any noticeable odor. The data relative to sprinkling filters are probably those which will be regarded by American engineers as the most novel in this respect. In this connection it may be noted that the Baltimore, Md., Sewage Commission are reported to have recently recommended these filters for use in that city.

MUNICIPAL NEWS

ALABAMA, Epes.—At Epes Station, on the Alabama Great Southern Railroad, in Sumter county, on the west bank of the Tombigbee river, are ledges of Selma chalk, or rotten limestone, sufficient to run a cement plant producing 5,000 barrels a day for more than a hundred years. The purer varieties of this chalk, i. e., those carrying 75 per cent. or more of lime carbonate, are exceptionally valuable as cement materials, for they are very soft and easily quarried and crushed.

ARIZONA, Bisbee.—The sewer bonds have been sold, satisfactory arrangements having been made with the local banks by Acting City Attorney Sutter. The difficulty in regard to making a levy to pay interest on the bonds has been overcome. This insures the city a modern sanitary system which will make Bisbee one of the best improved cities in the territory.

ARKANSAS, Pine Bluff.—The Plum Bayou levee has at last been completed after work on it for nearly two years. The work was commenced in the fall of the year 1905, and has continued since. The contractors, Messrs. Roach and Stansell, have gone to Mississippi, where they have a contract to put in a large levee at one of the small towns.

CALIFORNIA, Oakland.—At a recent Council meeting three resolutions were passed favoring installation of a salt water pumping plant for fire protection and other municipal purposes. The first was a general resolution to the effect that such a plant should be installed, and that the tax levy should provide for it. The second was that a committee, composed of Councilmen Pendleton, Baccus and Thurston, should confer with City Engineer Turner as to the best plan to be adopted. The third resolution was to the effect that not more than \$70,000 should be expended.

Sacramento.—Complaint has been made that an ordinance requiring garbage haulers to use watertight wagons with covers and prohibiting them from hauling garbage through the streets between the hours of 9 a.m. and 9 p.m. is not being enforced. Dr. H. L. Nichols, executive officer of the Board of Health, said the Board found it impracticable to enforce the provision requiring the garbage haulers to do their work at night. He said they protested so loudly that the Board relented.

COLORADO, Florence.—Washington City is the latest townsite in the Spaulding country, and has been named in honor of Washington Leary, who owns the land. There is said to be a good deal of gold and silver ore running through the townsite, but this portion of the land has been reserved for mineral purposes. A better wagon road will be established between Florence and Spaulding.

CONNECTICUT, New Haven.—The Board of Health received a total of 419 complaints regarding collection of garbage in August. Health Officer Wright does not blame the garbage contractors and attributes the dissatisfaction to the insufficiency of the appropriation. Only \$7,500 is spent to collect garbage, whereas many cities of half the size spend as much. It is estimated that \$22,000 would purchase a satisfactory equipment for the city to do its own collecting.

DELAWARE, Wilmington.—The City Council has decided to attend the convention of the League of American Municipalities, which will shortly be held in Chicago. This was decided on at a meeting of Council as a committee of the whole and the report was signed

by all the councilmen. Six hundred complaints have been received in a week by the Secretary of the Board of Health for non-collection of garbage. Owing to remodeling of the crematory, it can be run at only half capacity. As the Board will not allow garbage to be hauled to the hog pens, the Council will have a problem to solve.

DISTRICT OF COLUMBIA, Washington.—Covering the business transacted in the Engineer's office, District of Columbia, during the fiscal year ended June 30 last, Assistant Engineer E. M. Talcott has submitted a report to the Commissioners showing the status, past and present, of variously proposed street and park extensions, condemnations, etc. One of the salient features of the report is contained in the statement that the Engineer's office during the past session of Congress prepared reports upon forty-seven bills which had as their object the acquiring of land for the District, and that only five such measures passed both houses of Congress. They were the bills for the extension of Rhode Island avenue, Massachusetts avenue, Euclid street, Kalorama road, and to acquire the triangle at 16th and 15th streets, and at 16th street and Piney Branch road, for use as parks.

FLORIDA, Pensacola.—The street railway company has begun to raise the Big Bayou trestle, as required by United States government regulations. Besides these improvements the power plant is being increased by the addition of two new 250-horsepower Corliss engines and boilers. Two new 48-foot cars have been received.

St. Augustine.—Between \$75,000 and \$100,000 worth of improvements during the summer would indicate that something has been doing in the old city during the "dull" season.

GEORGIA, Atlanta.—The most important public work now under way is the Washington street viaduct. The old distinction of North and South Atlanta will soon be wiped out by the series of viaducts built during the last few years. Only two of the main arteries of business crossing the railroads in the business area remain uncovered by viaducts. These are Central avenue and Pryor street, and three-fourths of the pressure at these two points has been taken off by the opening of the new terminal station, through which 75 per cent. of the passenger trains enter and depart from the city. There are already five viaducts, and with the completion of the one on Washington street there will be six. These structures will greatly expand the business area and give long needed relief to the congested state of traffic in the heart of the city.

Savannah.—The Savannah Electricity Co., which controls the street railway business in Savannah, will be seriously affected if two ordinances presented to Council recently are passed. One of them is an application by Captain M. Edward Wilson for the passage of an ordinance giving him the right to run electric passenger automobiles on Bull street from Bay to Forty-second street. This would seriously cut into the traffic of the railway company. The other was an ordinance providing for the separation of the races in the street cars of the city.

IDAHO, Boise.—The Council has instructed the Street Commissioner to enforce an old ordinance compelling property owners and residents to clean up their premises by cutting weeds and grass, removing rubbish, trimming trees and clearing ditches. Every occupant of a residence is compelled under the ordinance to take care of the sidewalk and road in front of his lot out to center of the street and the alley in the rear.

ILLINOIS, Chicago.—Two lamp posts have been placed in the middle of the roadways at Michigan avenue and Jackson boulevard, by order of the South Park Commissioners to prevent the speeding of automobiles around the corner. Red lights are displayed on top of the posts at night and during the day a patrolman will be stationed at the crossing to warn the machines to keep to the right. The corner is regarded as one of the most dangerous in the city because of the heavy auto traffic.

Elgin.—Although the ordinance recently passed by the City Council requiring the installation of water meters does not go into effect until the first day of the new year, over 100 meters have already been ordered by consumers from the Water Department. All of the number will be fixed in place by October 1. Officials of the Department are highly gratified with the popularity of the meter system. Applicants for meters pay 25 per cent. of the cost of the meter at the time of application, and may pay the balance in monthly or quarterly installments. The amount of saving by the use of the meter system is said to be sufficient to pay for a first-class meter in less than a year's time.

Metamora.—Mayor Irving and other leading citizens have interested themselves in the formation of a company for the construction of either a gas or electric-lighting plant for the city. Several propositions have been received and it is probable one of them will be accepted.

Moline.—Glowing reports are brought back to the city by Mayor Olson and the members of the garbage committee who went to Chicago to inspect a garbage plant and witness the cremation of garbage. In the party with the Mayor were W. H. Christison, W. B. Kent, H. J. Gripp, George Gould and Magnus Olson. A plant built by the Standard Construction Co., of Chicago, was visited and, as far as the committee could see, it disposed of the garbage very satisfactorily.

INDIANA, Huntington.—Mayor J. Fred France, in a farewell message to the Common Council reviewed the progress of the city during his administration. The building of the Rabbit Run sewer has been nearly completed. Lack of funds prevented the cleaning and draining of Little river, which is still a menace to health. An air-lift system and reservoir has been added to the waterworks, according to the recommendations of a Consulting Engineer, but the results have been so far disappointing. The equipment of an East End fire station is recommended for the consideration of the new Council.

Richmond.—The finest telephone plant in the United States will be erected by the Richmond Home Company. It will be located in a two-story brick building on the lot at 25 North Ninth street. It will be equipped with the automatic system. The building and equipment will cost in excess of \$100,000. It will afford one of the leading advertisements of the city and will bring visitors from every section to view the manipulation of the automatic system. The plant will be the most modern, the latest improved, the most scientifically arranged and the most thoroughly equipped of any in the country. The building will be a fireproof structure in every particular.

INDIAN TERRITORY, Ardmore.—The greatest thing in store for the rapid advancement of Ardmore is the natural gas field that lies close to this city. Experts who have made personal examinations of the fields say that there is sufficient gas already brought to the surface to supply a city of 100,000 people with

all the factories that belong to a city of that size. The parties now preparing to put in a vitrified brick plant contemplate the use of this gas in the operation of the plant. Many factories follow natural gas fields, and Ardmore will have the advantage of all these enterprises.

IOWA, Davenport.—The City Council has adopted a plan which is expected to result in a settlement of the light question for the next five years. On motion of Alderman Ogden, the Light Committee and the City Electrician were intructed to investigate the comparative merit and cost of the alternating and direct current systems of lighting and at the request of Alderman Malloy, President Porter of the merger company agreed to submit an estimate of the prices that can be made the city under different specifications. On the request of Mayor Becker, Mr. Porter also promised to include in his report estimates of the prices at which the company is willing to furnish gas and electricity to private customers.

KANSAS, Leavenworth.—A task that has been already too long deferred is that of putting the Leavenworth city ordinances in such form that one or more copies shall be available for the City Attorney, the several city officials and the lawyers here. At present the respective ordinances repose in a book, many of the leaves of which are loose and may be lost at any time. Instead of these ordinances having been copied for preservation, they have merely been clipped from the official paper and pasted into the ordinance book. It was not a great while ago that this book was narrowly saved from a fire which might have left the city absolutely without any records of its ordinances.

KENTUCKY, Lexington.—The new crematory building is nearly completed, and some macadamizing is still to be done about the approaches to the building. The Dixon Garbage Crematory Company, Toledo, Ohio, has completed its work. Coke will be the principal fuel used after the fires have been started with wood. A proposition considered at one time to use gas has been abandoned.

Louisville.—Due to better health regulations, the death rate in Louisville for the fiscal year, which came to a close September 5, was smaller than ever before, according to facts set forth in the annual report of Dr. M. K. Allen, submitted to the Board of Public Safety. In 1904 the death rate, which was the smallest on record for the city of Louisville up to that time, was 17.56 per 1,000 inhabitants. During the fiscal year of 1905 the death rate for Louisville was reduced to 16.79 per 1,000 inhabitants. The death rate for the fiscal year just closed is only 16.05 per 1,000.

LOUISIANA, Alexandria.—Mayor Turner has been unable to get his Aldermen to attend called meetings. After three unsuccessful attempts to round up a quorum for the adoption of sidewalk paving ordinances, it has been found necessary to readvertise for bids for the work and also delay approval of paving work already completed. The salary of an Alexandria Alderman is \$100 per year, and it is pointed out that if it is the understanding that they will not attend more than one regular meeting a month, eliminating all called or special sessions, their compensation will be \$2.77 per hour—something over the scale paid Supreme Court judges.

New Orleans.—The Board of Directors of the Algiers Water Works have made a definite proposition to sell out to the Sewerage and Water Board of New

Orleans. After reviewing the history of the company, its equipment and future prospects, the directors say: Under the circumstances and by way of compromise, wishing to avoid a litigation over franchise rights that will certainly be expensive to all parties, whatever the outcome, we beg to make this offer to your board of our entire waterworks plant system, rights and business, including two lots of ground occupied by the pumping plant and stand pipe (which lots are easily separated from the balance of our property), for the sum of \$150,000, with the understanding that we are to remain in possession of the works until December 31, 1910.

MAINE, Portland.—New orders have been issued to the effect that patrolmen when on duty shall refrain from conversation with any citizen or with another officer; also that, in or out of Police Headquarters, the officers shall not talk religion or politics.

MARYLAND, Baltimore.—Acting Postmaster-General Hitchcock believes that the one-horse wagons now used in the collection of mail can be advantageously superseded by automobiles, and he has decided to test the scheme in Baltimore, because the city is the first in which a contract for collection by wagons will terminate, and, in addition, Baltimore is very hilly, and will furnish a thorough test of the automobiles under unfavorable conditions. If the coming test proves successful, the use of automobiles will be extended to the larger cities. Two specially constructed automobiles will be used in Baltimore. They are to take the place of four wagons, and the Postoffice authorities are confident that their use will result in a quicker collection of mail.

MASSACHUSETTS, Boston.—Fine results have been achieved this season by competitors for the special prizes offered by Mrs. John L. Gardner for excellence in window gardening and the growing of plants and flowers in back yards, on roofs and like places in the tenement districts of the North End, the South and West Ends. This is the second year of these competitions, and last year's was so successful, and aroused so much interest that this was increased this summer, with fully 150 competitors entering the contest. Those who have striven this season for prizes include people of many nationalities, and they range in age from small children up to people of mature years.

MICHIGAN, Detroit.—Streets not covered by the ten-year guarantee are repaired by the asphalt plant operated by the city, which last year cost \$19,000 for operation. The cost to lay sheet asphalt by the city plant is from 70 to 82 cents per square yard. An appropriation of \$50,000 has been made to construct a plant for the manufacture of paving brick.

Grand Rapids.—The constantly increasing danger of allowing wires carrying electric currents of high voltage to be strung promiscuously through the streets has been called to the attention of the Board of Police and Fire Commissioners. Fire Marshal Lemoin, in a communication to the board, dwelt upon the needs of an ordinance to cover the stringing of wires. He said that at present there is a wire from the Lowell electric plant extending to the Oliver Plow Works on Coldbrook street carrying a current of 13,000 volts. He says he understands that the same electric company is contemplating the stringing of a wire to the center of the city carrying 66,000 volts.

MINNESOTA, St. Paul.—Although the pompier ladder has been in service many years and the Fire Department has carried the ladders on the trucks for

twenty years, it has not been until recently that the great value of the system has been fully appreciated. Chief J. J. Strapp, when appointed as Chief Engineer by the Fire Board, immediately undertook to place the pompier drill on the highest footing, and daily drills have been the result. "We are becoming proficient in the art of scaling walls with our 'steel hooks,'" said Second Assistant Chief Rodecker, "and we intend to keep up the practice, for the pompier work is one of the most important branches of the entire service."

MISSISSIPPI, Jackson.—The Police Chiefs of the State organized an association at a meeting in Jackson on September 4. The idea originated with W. E. Daniel, marshal of Yazoo City. The organization was modeled after the International Order of the Chiefs of Police. The subject of "blind tigers" was one of the puzzling problems dealt with.

MISSOURI, Argentine.—W. T. Watkins, President of the City Council, has decided to call a special election for September 24, to choose someone to succeed August F. Jasper, who resigned the office of Mayor a few days ago. No one has yet been found who will take the nomination. The Mayor's salary is only \$1 a year, which may have something to do with the business men's reluctance to become Argentine's chief executive. Every man to whom the place has been offered has expressed doubt of his ability to support a family on the emoluments thus far attached to the Mayor's office.

Kansas City.—The City Council recently granted to a syndicate of Chicago capitalists twenty days in which to consider and accept a franchise to furnish the city with natural gas at twenty-five cents a thousand feet for domestic use, and at ten cents for manufacturing purposes. At the expiration of the time the capitalists declined the offer.

MONTANA, Great Falls.—Senator Gibson, who is largely responsible for the singularly beautiful results of public improvement in Great Falls, says: "No suggestion or plan for the public improvement or beautification of Great Falls has ever met with any opposition from the people. Like the people of other cities, we have our feuds and our cliques. But we never fail to get together for any and every plan of public improvement." Given a flat, eventless and almost barren plain, the townsite of Great Falls has been transformed into one of the most beautiful and finished urban places in the Northwest. Realty values have been advanced and sustained by the paving, parking and tree planting. There is a growing clamor for the establishment of improvement districts, and if the pace is maintained Great Falls will become one of the model cities of the United States.

NEVADA, Virginia.—Superintendent Leonard, of the Virginia & Goodhill Water Company, has announced that as soon as Ramsay demonstrates that her ore values are sufficient to make her a permanent camp, his company will take steps to pipe water into the district from Marlette Lake, from which Virginia City gets her chief water supply.

NEW HAMPSHIRE, Manchester.—There have been cases of incorrect recording of the fire signal. Each box contains a device by which its action may be completely tested, under service conditions, without sounding any alarm. A simple arrangement, within the box, serves to remove it from the circuit so far as its effect upon the bells and indicators is concerned, but allows sufficient current to pass through the box mechanism, so that, when the box is

pulled its making and breaking of the current is permitted exactly as would be the case in service and a small bell within the box answers to these signals.

NEW JERSEY, Atlantic City.—Mayor Stoy's threat to use women as police, because of the scarcity of able-bodied men willing to wear brass buttons on the beach, has aroused the question of the proper costume in which the fair cops are to be caparisoned. Several women who want jobs on the force have taken the matter into their own hands. One of them sent a letter to the Mayor recently, with a sketch and a treatise on dress.

East Orange.—The work of laying the new twelve-inch fire main, to protect the hatting district in Orange Valley has been started. The hat manufacturers are congratulating themselves on the action of the Common Council in ordering the Fire Committee to proceed with the rental of a steam fire engine to help out the situation until the new water system is completed.

Newark.—The varied extension of the service of the Public Library of Newark includes the branch established for the use of the employees of the Clark Thread Company. The Newark Library has also placed collections of books in four of the largest department stores of the city, in two factories, in thirteen engine houses, and in the Post Office for the use of letter carriers and clerks.

NEW MEXICO, Santa Fe.—Finances at the penitentiary are in such a shape that it is necessary to keep a large number of men constantly at work in the brick plant in order to make enough brick to pay expenses. The superintendent must manufacture and sell all the bricks possible in order to keep things moving. He is now having two big kilns constructed in order to increase the burning capacity by 12,000 bricks. This will require the attention of additional men.

NEW YORK, Albany.—State Engineer Van Alstyne has prepared a map of the roads of the State. This map shows 692 miles of improved roads already completed, 1,550 miles, plans for which have been approved by the various boards of supervisors, and 5,450 miles whose improvement is recommended by the State Engineer for the purpose of forming a complete system of improved roads for the State. By contrasting colors, the map shows that 533 towns have adopted the money system of highway improvement, while 399 adhere to the old labor system, whose abandonment the State Engineer earnestly recommends.

New York City.—The plans for the newest office sky-scraper, part of which is to occupy the site of the old Coal and Iron Exchange, have been filed with Building Superintendent Murphy. The edifice will face on Broadway, Cortlandt street and Trinity place, respectively, and will be 26 stories on Broadway and 32 stories in its central section on Cortlandt street. The Broadway section will resemble a tower in appearance, and will be crowned with a cupola and a dome. The design of the edifice will be Italian renaissance. There are to be three groups of elevators, in sets of seven each, extending from the first to the ninth floor, the ninth to the seventeenth, and the seventeenth to the twenty-fifth. Other elevators will run from the twenty-fifth story to the top.

Rochester.—Nearly all of the property abutting on Hemlock Lake has been acquired by the city, so that Rochester's water supply is comparatively free from pollution. There remain, however, a few pieces of property owned by private individuals. While these are not regarded as a serious menace, Corporation Counsel Webb urges that steps be taken to buy them

up, so that the entire water frontage shall be owned and controlled by the city.

Rome.—The city of Rome has been declared unfair. This discovery was made by the Water and Sewer Board. It wanted some work done and called for union plumbers, and was surprised upon receiving the information that until every board in the city declared for union labor, union labor would stand out against the city. The Water and Sewer Board then happened to recall that one of its employees is an experienced plumber. He was called in and the job was given to him, and hereafter, the board declares, it will do its own plumbing.

Saratoga.—Through the installation of water meters in residences and business places of the town, which numbers about 15,000 permanent inhabitants, the use of water has decreased one-half in three years. A town official says: "Our people use as much water as ever, but they waste less."

Syracuse.—Syracuse is said to be threatened with an epidemic of typhoid fever because the lake from which it draws its water supply is lined with cottages. The Syracuse newspapers are advocating the purchase by the city of the shores of Skaneateles Lake in order to keep the waters from pollution and ward off an epidemic of zymotic diseases. In support of their argument, they point to results obtained in Rochester.

NORTH CAROLINA, Wilmington.—The Clarendon Waterworks Company declines the offer of \$70,000 by the city for its plant, which it is sought to acquire to be operated after enlargement and improvement as a municipal property. Chairman Johnson, of the Board of Public Works, is understood to be in favor of breaking off all negotiations and proceeding at once with the construction of an independent plant. On the other hand, there is a strong sentiment in the Board of Aldermen for appraisalment by disinterested experts.

NORTH DAKOTA, Grand Forks.—One hundred and thirty-six new towns have been built in the Northwest this year, most of them in North Dakota. They are built on extensions of the railroads in the course of construction, and are laid out about ten miles apart, according to regular plans. They are built on the north or west side of the track to protect the station from snow. They each have a public square, a grain elevator and a lumber yard.

OHIO, Cincinnati.—The Street Cleaning Commissioner reports: "We have added four flushing machines for flushing of streets. These four machines will flush thirty-five squares in a night and twenty-five squares in the daytime, and clean the streets much more thoroughly and more cheaply than we can do it in any other way. Unfortunately we have been hampered in the supply of water, or they would have shown better results." Two of the machines have been purchased from a new "street cleaning earnings fund," created from the sale of refuse, which hitherto, if sold at all, was not credited to the department. The cost of cleaning per block was \$1.16, or 58 cents per 1,000 square yards. The cost of collecting and disposing of a yard of ashes is 48 cents.

OKLAHOMA, Tahmas.—The town of Tahmas has subscribed \$2,000 for the purchase of a new steamboat by the Muskogee Navigation Company.

PENNSYLVANIA, Chester.—The three days' convention of the League of the Cities of the Third Class opened on September 4 with the formal reception of delegates by Mayor S. R. Crothers. This function took place in the Mayor's office in City Hall. Later, at

Nolan's Hall, Mayor Crothers delivered his formal welcoming address, which was responded to in a happy vein by Samuel Milliken, City Treasurer of McKeesport.

Mt. Olive.—The borough of Mt. Olive, with about 6,000 population, has made application for annexation to the city of Pittsburg.

Philadelphia.—President John B. Parsons, of the Philadelphia Rapid Transit Company, who has been spending several months in England and on the Continent, has returned to this city. Speaking of local conditions, he said: "I am greatly pleased with the progress being made on the subway. I am especially pleased with the work of the police traffic squad. This is what we have been wanting for years. It was next to impossible to move traffic in the congested parts of Market street with any degree of rapidity. This would have been a terrible problem with the work being done on the subway, but the solution has been found in the traffic squad, which I am told has been doing fine work in expediting the street car as well as the wagon traffic."

RHODE ISLAND, Pawtucket.—A protest against an increase of 20 per cent. in the insurance rates, within certain prescribed limits in the city, as announced by the New England Insurance Exchange, will very likely be made by big property owners. The city's freedom from serious fire during the past fifteen years and the up-to-date equipment of the local Fire Department, is pointed out by owners of property. Leading business men and manufacturers have discussed withdrawing all insurance and adopting the policy of insuring themselves, by yearly deposits to cover any loss which they suffer by fire.

SOUTH CAROLINA, Charleston.—The efforts of State Commissioner of Emigration, E. J. Watson, and the citizens of Charleston have been successful in inducing the North German Lloyd directors to send a steamship with emigrants direct to Charleston. A return cargo of cotton is assured, and it is expected that the service will be permanent.

TENNESSEE, Nashville.—The City Health Office has recently completed a test to determine whether poultry drawn and packed in ice would last longer than undrawn poultry carried under the same conditions. The result of the experiment showed that the poultry packed undrawn kept better, being in good condition, whereas the drawn poultry had deteriorated materially.

TEXAS, Fort Worth.—City Engineer Hawley has reported on some economies for the city waterworks. An artesian supply raised by air lifts is pumped to a 200,000-gallon standpipe, and distributed by two 8,000,000-gallon-capacity pumps. As the consumption is 3,000,000 gallons per day the system is not an economical one. The engineer makes recommendations, which he hopes will reduce the fuel charge one-half.

VERMONT, Proctor.—The Vermont Marble Company is the largest owner of land and buildings; it rents many houses to its employees, and is ever ready to help them build and own their homes. The town offices are located in the same building with the company's offices; many of the leading officers of the company hold responsible positions in town government. Water supply, streets and sidewalks, and the support of schools, are cared for most efficiently. Some years ago a free public library was built by the company, and amply equipped and endowed.

VIRGINIA, Ashland.—A franchise has been granted to the Ashland Gas, Sewer and Water Company. Work will begin in thirty days, and an artesian waterworks costing \$85,000 will be built. A new \$15,000 railroad station will be erected at the same time.

Lynchburg.—Mr. Lamar Lyndon, New York City, has submitted plans for a city electric plant estimated to cost \$50,000. Hydraulic turbines and an auxiliary steam plant will supply power. The machinery will be placed in the building now in use, remodeled with a higher floor to avoid danger of flooding.

WASHINGTON, Seattle.—The Seattle Chamber of Commerce and two-thirds of the business men of the city have organized to fight municipal ownership of street railways, to be voted upon September 12. At a meeting of the chamber a resolution was adopted saying Seattle is in need of many things which will tax the property owners, and needs them worse than a municipal street railway. Chief among the items needed is an extension of the water system and an issue of \$2,500,000 in bonds for this purpose will be voted upon at the special election, when the municipal ownership question will be decided.

IN OTHER LANDS

CANADA, Montreal.—The plans of the Montreal Bridge and Terminal Company to bridge the St. Lawrence river and establish terminals in the heart of the city, are well advanced. The cost of the bridge and terminals on both sides is estimated at \$12,000,000, funds to cover which have been provided entirely in London, where the company has its head offices. The new structure will have tracks for both steam and electric trains and provisions for vehicle and foot traffic. In respect to the portions devoted to electric cars and roadways, the bridge will be an innovation at Montreal, which has no year-round connection with the south shore, except by way of the Grand Trunk and Canadian Pacific bridges. These take passengers some miles out of a direct route, while the ferry service is suspended in winter. With a bridge of adequate proportions and centrally located, the portion of Montreal on the south shore is expected to develop rapidly.

CHILE, Valparaiso.—The government has drawn up and presented a project for the reconstruction of Valparaiso. In order to prevent the flooding of streets they will have a uniform level. The minimum width of streets, without counting sidewalks, will be fifteen meters. The government will pay cash for lands expropriated for this purpose and will facilitate loans to owners of lands thus taken.

FRANCE, Rheims.—Several bathing establishments in Rheims, and this is true of other French cities, have portable bath tubs, which are placed on two-wheel vehicles provided with a large iron boiler filled with hot water. As orders for baths to be delivered at the doors of the residences are received the boilers are filled with hot water and the bath-laden vehicles, each pulled by two men, start out for the delivery. The bath tub is filled with the hot water and carried into the residence, and while the family bath is going on the vehicle may fill another order, returning again for the tub, which is in regular commission as a visitor to the residences throughout the city. The price of a delivered-at-your-residence bath in Rheims is 30 cents, while at the establishment it costs 20 cents. Rheims has a public bath in connection with the lavoirs publiques owned by the city, where the nominal charge of 4 cents is made for baths.

Personals

ATKINSON, AMOS, Deputy Chief of the Worcester, Mass., Police Department, who recently celebrated his sixty-seventh birthday, has been thirty-eight years in the department and has filled every position from patrolman to head of the department.

CARROLL, J. C., of Cooperstown, Minn., is preparing plans and specifications for a sewer system to be constructed at Hallock, Minn.

CHAMBERLAIN, GEORGE E., Governor of Oregon, was elected President of the Fifteenth Congress to be held at Sacramento, Cal., at the recent session of the National Irrigation Congress at Boise, Idaho.

DERRIAH, BERNHARD, Steward of the Conyngham, Pa., Poor District, has been requested to resign because he is not married; it is an unwritten law that the Steward of the district shall have a wife to act as matron.

DAVIS, DR. FLOYD, Water Chemist of Des Moines, Iowa, is preparing plans for improving the water system of Beatrice, Neb.

DOLAN, ARTHUR W., for six years a member of the Common Council of Boston, Mass., and four years its President, has been named as private secretary to the Mayor of the Hub, by Mayor John F. Fitzgerald.

FOSTER, GEORGE J., has been elected Mayor of Dover, N. H., by the City Council to fill the vacancy caused by the death of Mayor Alonzo T. Pinkham.

FULLER, M. L., of the U. S. Geological Survey, has made a report on the condition of the water supply of Portsmouth, Ohio, and the Waterworks Commission has decided to make a thorough test of the sand bars along the river, to determine their value as a source of supply for the city.

GORE, J. H., a Virginian, appointed as official delegate from the United States to the International Congress of Actuaries at Berlin, Germany, has been accepted by Mayor Schmitz, of San Francisco, Cal., as mediator between the German insurance companies and the policy holders who suffered by the earthquake and fire.

HOLLAND, MRS. E. M., of Chicago, who for several weeks has been at Washington, D. C., installing the finger-print system of criminal identification in the Metropolitan Police Department, has been named by Governor Charles S. Deneen, of Illinois, as delegate to the annual convention of the National Prison Association at Albany, N. Y., September 15 to 20.

McKINSTRY, JAMES, Councilman of Hollidaysburg, Pa., recently passed the allotted three-score-and-ten milestone, but is still an active promoter of municipal progress.

MANNING, WARREN H., landscape artist of Boston, Mass., recently visited Harrisburg, Pa., to look over the park system of the city, after a visit to Arizona and other Western States, and held conferences with President Disbrow and the other Park Commissioners.

PIERSON, GEORGE S., an expert engineer of Kalamazoo, Mich., has prepared plans for an intercepting sewer, to cost \$90,000, for the city of Jackson, and the same have been accepted by the City Council.

SCHILLINGER, DR. RICHARD, Mayor-elect of Richmond, Ind., has announced the following appointments: City Engineer, Frederick Charles; City Comptroller, Webster Parry; City Attorney, Thomas J. Study; Board of Public Works, Clifton W. Merrill, B. B. Johnson, and Watson P. O'Neal; Board of Health, B. F. Wissler, John H. Luken and Charles S. Bond.

SECREST, PERLEY A., City Marshal of Kirkwood, Mo., has been recognized as the official canine undertaker of the city, the Ways and Means Committee of the Board of Aldermen having honored his bill of fifty cents for burying a dog.

SHERMAN, W. J., of Toledo, Ohio, is the consulting engineer for constructing additions and making improvements to the waterworks plant at Fostoria, Ohio, to cost \$9,000.

SMITH, JAMES A., Building Commissioner of St. Louis, Mo., has asked for the appointment of at least three engineers in his department to take charge of steel and other costly construction work, the city being without inspectors with a technical education, although practically all the large cities have engineers in the Building Commissioner's Department.

TIMANUS, E. CLAY, Mayor of Baltimore, Md., has announced that he will attend the annual convention of the American League of Municipalities in Chicago, Ill., as one of the delegates of the Maryland city.

WRIGHT, GEORGE P., Mayor of Tacoma, Wash., has announced the appointments for the Board of Park Commissioners as follows: W. F. Sheard, for one year, to succeed himself; Stuart Rice, reappointed for two years; Chester Thorne, for two years; W. R. Rust and W. C. Bardsley, for three years each. The members who have retired are C. M. Easterday, J. E. Aubrey and Peter Daly.

CORRESPONDENCE

Editor MUNICIPAL JOURNAL AND ENGINEER,

Flatiron Building, New York City.

Dear Sir:—I am interested in the subject of a salt water system for the city of Oakland, Cal., and would be greatly obliged for any information you can give me relative to its use.

R. P. W.

ANSWER.—Salt water is being used and advocated for sprinkling streets and extinguishing fires. Its use for the former service has been quite limited, and there is a difference of opinion as to the desirability of this. It is claimed that the salt will be injurious to horses' feet, to rubber tires, ladies' dresses, etc.; and that when dried and blown about as dust it will be detrimental to merchants' wares of various kinds, irritating to eyes, and otherwise objectionable. The harbor water in New York, when so used, has given off very offensive odors, because of the sewage and other polluting matters in it. The advantage is of course the diminished use and waste of potable water. When used for fires it causes a somewhat increased amount of damage to goods, but this is of minor importance. The reduction in the amount of potable water consumed is, contrary to popular ideas, of no importance. In New York, for instance, the annual consumption of water for fire purposes is but about 0.1 per cent. of the total consumption; at the Baltimore fire, where engines from several cities were in service, the total amount used was about one day's average consumption only; and it is doubtful if any city used in a year more than 1 per cent. of its annual consumption for fire extinguishing. If, however, there is not sufficient water stored in a reservoir near the city to extinguish the largest fire, or for some other reason there may be a question about the possibility of maintaining a sufficiently high rate of supply, such an auxiliary supply is desirable. If, also, there is a probability that the line of pipe from the reservoir to the city may be broken from any cause, another source of supply close at hand is most certainly desirable, be it salt or fresh, but the latter is preferable. For—and this is a serious objection to the use of salt water—the salts are believed to be destructive of cast-iron mains (and no other material has as yet been seriously considered for fire mains), and where salt water is used the mains are emptied of this after such use and refilled with fresh; while New York, which is often referred to as a user of salt water for fire protection, really contemplates using the potable supply as long as this lasts, but is provided with facilities for changing at a few minutes' notice to salt water. Wherever salt water is used it is of course necessary to provide for it mains separate from those which carry the regular supply; for not only would the occasional use of salt water give a briny taste to the fresh supply, no matter how well the mains be drained after each fire (assuming such drainage and the resulting interruption of the supply to consumers to be practicable), but such water along the water fronts of cities is almost invariably polluted by sewage, and the unfortunate experiences of several cities have shown the practical impossibility of removing all danger of typhoid fever epidemics by draining the pipes after the presence therein of polluted water. Since salt water for either fire or flushing requires special mains, it follows that these must be laid to all parts of the city which are to be given the benefits of this service. Also, if the mains are not to remain continually full of salt water, the use of this for sprinkling streets is practically impossible. In view of the above facts and opinions, we conclude that salt water close to the business part of a city may to advantage be used as an auxiliary supply for fire protection only, to be furnished through separate mains by separate pumps, but that it is preferable to use the fresh water supply, even through some special mains, so long as it is available. Such high-service systems have been provided in Boston, Brooklyn, Buffalo, Chicago, Cleveland, Detroit, Milwaukee, Newark, New York, Philadelphia, Providence, and probably other cities, the maximum pressures ranging between 140 and 300 pounds, being the latter in Brooklyn, Buffalo, Chicago, New York and Philadelphia.

Some Unusual Fires

BANGOR, ME.—Coal sheds of Bacon & Robinson Co., burned, September 1. Schooner, adrift and on fire, threatened whole water front. Cause, sparks. Damage, \$35,000.

FRESNO, CAL.—Calwa winery burned, September 4. 250,000 gallons wine lost. Cause, explosion. Damage, \$300,000.

INDIANAPOLIS, IND.—Eureka Refrigerator Company's plant, burned, September 1. Cause, engineer dropped torch. Damage, \$60,000.

SONORA, CAL.—Several business houses burned, September 1. No water supply. Damage, \$75,000.

THE WEEK'S CONTRACT NEWS

Relating to Municipal and Public Work—Street Improvements—Paving, Road Making, Cleaning and Sprinkling—Sewerage, Water Supply and Public Lighting—Fire Equipment and Supplies—Buildings, Bridges and Street Railways—Sanitation, Garbage and Waste Disposal—Police, Parks and Miscellaneous—Proposals and Awards

BIDS ASKED FOR

STATE	CITY	RECEIVED UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
Street Improvements				
Indian Territory	Chickasha	September 13	18,803 square yards of paving	John H. Venable, Mayor.
Minnesota	St. Paul	September 13, 2 P.M.	Grading and paving with sand-lime brick	R. S. Gorman, Clerk Board Public Works.
Ohio	Wapakoneta	September 14	Vitrified brick or block paving	Chas. E. Fisher, Clerk.
Ohio	Portsmouth	September 14	Paving four streets with brick	Chas. F. Scherrmann, City Clerk.
Ohio	Upper Sandusky	September 14	Grading and macadamizing 2 miles	J. N. Traxer, Auditor.
Indiana	Terre Haute	September 15	Gravel road	Jerome W. Denelin, County Auditor.
Minnesota	Mankato	September 15	Grading road near Adrian	Frank Ellsworth, Chairman of Supervisors.
New Jersey	Hohokus	September 15, 3 P.M.	Constructing stone road	Richard Wanamaker, Engineer, Mahwah.
Iowa	Atlantic	September 17	Brick, stone or cement sidewalks	C. E. Nichols, City Clerk.
New Jersey	Perth Amboy	September 17, 8:30 P.M.	Grading street	W. H. Fullerton, Street Commis'n'r.
Florida	Jacksonville	September 17	Vitrified brick paving	City Engineer.
New Jersey	Garwood	September 18, 8 P.M.	Laying 8,735 feet bluestone flagging, 4 feet wide by 2 inches thick	Jacob L. Bauer, Borough Engineer, Elizabeth.
New York	New York	September 18, 3 P.M.	28,500 sq. yds. asphalt block paving; 25,140 sq. yds. sheet asphalt paving; 3,500 sq. yds. granite block paving; also bluestone curbstones	Comm. of Pub. W'ks, Bureau of Highways, Manhattan.
Virginia	Manassas	September 19	Macadamizing	O. E. Newman, Chairman.
Indiana	Newport	September 20, 10 A.M.	15,300 feet of gravel road	Vermilion County Commissioners.
Virginia	Portsmouth	September 20, 8 P.M.	14,000 sq. yds. vitrified brick paving, 6,900 ft. curb	Bascom Sykes, City Engineer.
Montana	Great Falls	September 20	62,000 sq. ft. concrete walks	W. P. Wren, City Clerk.
Wyoming	Cheyenne	September 20	9,000 sq. ft. sidewalks at Fort Russell	V. K. Hart, Chairman.
New Jersey	Flemington	September 21	Macadamizing 5 1/2 miles of road	Board of Freeholders.
Ohio	Cincinnati	September 21	Broken stone, gravel, etc., on road	Fred. Driebs, Clerk County Com'rs.
Ohio	Canton	September 21	10,570 sq. yds. vitrified brick paving; 3,400 ft. new straight curb; 516 ft. old curb; 244 ft. new circle curb	W. E. Sarver, City Engineer.
Ohio	Elyria	September 21	Grading, draining and macadamizing 7,665 lineal feet	L. A. Fauver, County Surveyor
Georgia	Waycross	September 22	16,700 sq. yds. brick paving; 6,000 lineal ft. curbing	A. M. Knight, Mayor.
Iowa	Des Moines	September 22	3,638 sq. yds. asphalt	Board of Public Works.
New Jersey	Flemington	September 24, 10 A.M.	28,325 ft. of macadamizing	J. H. De Mott, Director.
Ohio	Cincinnati	September 25, noon	Granite blocks, estimated cost, \$0,087	Chas. Davenport, City Engineer.
Water Supply				
Oregon	Chemawa	September 13	Water supply system	C. F. Larrabee, Commissioner Indian Affairs, Washington, D. C.
Manitoba	Carman	September 14, 8 P.M.	Steel tank, 60,000 gals.; 90 ft. steel tower	A. Malcolmson, Sec'y-Treas.
Wisconsin	Randolph	September 15	Water supply system	J. O. Jones, Village Recorder.
Canada	Regina	September 15	Water supply system	J. Kelso Hunter, City Clerk.
South Dakota	Pierre	September 17, 2 P.M.	Artesian well, 1,300 feet deep	C. F. Larrabee, Commissioner Indian Affairs, Washington, D.C.
Saskatchewan	Moose Jaw	September 17, 5 P.M.	Dam; concrete-steel reservoir; 41,700 ft. wood-stave pipe, etc.	John D. Simpson, Sec'y-Treas.
Michigan	Paw Paw	September 17	Electric drum and 750,000-gal. power pump	Wm. H. Masen, Village Clerk.
Minnesota	Kelliher	September 17, 9 P.M.	1,100 ft. 6-inch pipe; 20 x 20 white pine tank; 80 ft. steel tower; power house	M. D. Stoner, Bemidji, Engineer; J. W. Murray, Village Recorder.
Missouri	Clinton	September 18	Water supply system	G. V. Berry, City Clerk.
Indiana	Huntington	September 18	2,000,000 gal. W. W. pump	Joseph Carroll, City Clerk.
New York	New York	September 19, 2 P.M.	Pipe, fittings, stop-cocks and boxes	Wm. B. Ellison, Com'r Water Supply
Virginia	Manassas	September 19	Water works plant	O. E. Newman, Chairman.
Illinois	Chicago	September 20, 11 A.M.	Water pipe tunnel, 1,600 ft. long, under S. Br. Chicago River	Wm. L. O'Connell, Com'r Public W's
Missouri	Neosho	September 20	Improvements and extensions	J. W. Hanson, City Clerk.
Saskatchewan	Moosomin	September 20, 7:15 P.M.	Pump house; gasoline engine; fire pump; steel water tower; 6,000 ft. mains, etc.	John Smithers, Sec'y-Treas.
New York	New York	September 26, 2 P.M.	Hauling and laying mains	Wm. B. Ellison, Com'r Water Supply
Kansas	Garden City	September 28, 2 P.M.	Wells, pumping plant, etc.	Chief Engineer, Reclamation Service, Washington, D. C.
Ohio	Cincinnati	September 28	Apparatus for filtration plant and settling reservoirs, laying pipe	Aug. Herrmann, President Board of Trustees.
New York	New York	October 1	Aqueduct, 35-mile section	Municipal Water Commission.
Louisiana	Crowley	October 5	Water works plant	George H. Horton, City Clerk.
New York	Lockport	October 8, 8 P.M.	Complete water works system	E. S. Bennett, City Clerk.
Sewerage				
Oregon	Chemawa	September 13	Sewerage system	C. F. Larrabee, Commissioner Indian Affairs, Washington, D. C.
Minnesota	St. Paul	September 13, 2 P.M.	Storm-water sewer	R. L. Gorman, Clerk Board of Public Works.
Pennsylvania	Radford	September 14, 3 P.M.	Sewers and gutters	R. L. Jordan, Clerk of Council.
Wisconsin	Oshkosh	September 15	Sewer	Board of Public Works.
Connecticut	New Canaan	September 15, noon	Sewerage system	E. Worthington, Engineer.
Canada	Regina	September 15	Sewerage system	J. Kelso Hunter, City Clerk.
North Carolina	Salisbury	September 15	1,163 ft. of 18-inch pipe sewer; 72 ft. of 14-inch C. I. pipe, manholes, etc.	J. W. Webb, Plumbing Inspector

Sewerage—Continued

New York	Plattsburg	September 15	Vitrified tile drains	Capt. Edward T. Hartman, Q. M.
Iowa	Burlington	September 17, 4 P. M.	Constructing 12-inch sewers	J. F. Winters, City Engineer
Ohio	Cleveland	September 17, noon	Sewers	A. R. Callow, Sec'y Bd. Pub. Service.
Pennsylvania	Harrisburg	September 18, 2:30 P. M.	Re-inforced concrete sewer	D. E. Tracy, Sec'y Bd. Public Works.
Maryland	Baltimore	September 19, 11 A. M.	Storm water drains	Harry W. Rodgers, Sec'y Sewerage Commission.
New York	New York	September 19, 11 A. M.	Brick and pipe sewers and appurtenances	Asst. Commissioner Public Works, Brooklyn.
South Carolina	Lake City	September 20, noon	7,100 ft. of clay and brick or concrete sewers	M. D. Nesmith, Chairman Public Works Committee.
Ohio	Canton	September 21, noon	5,000 ft. of sewers, 4 to 10 inch	W. E. Sawyer, City Engineer.
Minnesota	Mountain Lake	September 24, 7 P. M.	Sewerage system	C. W. Gove, Windom, Engineer.
Oregon	Portland	September 23	Storm sewer, estimated cost \$34,000	W. Douglas Taylor, City Engineer.
Indiana	Nappanee	September 24	Sewer	John W. Brown, Town Clerk.
Minnesota	Brainerd	September 27	System of sewers	C. H. Kanstner, City Clerk.
Pennsylvania	Narberth	October 1, 8 P. M.	Sewerage system	E. C. Hawley, Clerk of Council.
Louisiana	Crowley	October 5	Sewerage system	George H. Horton, City Clerk.

Lighting and Electricity

Michigan	Muskegon	September 13	Gasoline machine, 150 to 200 lights; fixtures, etc.	Frederick Norman, Chairman Building Committee.
Michigan	Paw Paw	September 17, 1 P. M.	Dam; hydro-electric power plant; electric light improvements	Wm. H. Mason, Village Clerk.
Pennsylvania	Pottsville	September 18	Lighting streets and bridges	G. A. Burner, Town Clerk.
Missouri	Clinton	September 18	Electric light plant, including power house	G. V. Berry, City Clerk.
Virginia	Manassas	September 10	Electric light plant	O. E. Newman, Chairman.
Alabama	Anniston	September 20	Street lighting, 100 arc lights, contract for 10, 20 or 30 yrs.	Thos. E. Kilby, Mayor.
Arkansas	Malvern	September 20	Complete electric light plant	C. W. Turner, Malvern.
New York	Sacket Harbor	September 24, 11 A. M.	Electric lighting system for 2,000 lights	Constructing Quartermaster, Madison Barracks.
Louisiana	Crowley	October 5	Electric light plant	George H. Horton, City Clerk.

Bridges

Indiana	Brownstone	September 13	Thirteen steel bridges, 16 to 60 ft. span	H. W. Wacker, County Auditor.
Wisconsin	Milwaukee	September 14, 10:30 A. M.	Bascule bridge, estimated cost, \$100,000	Charles J. Poetsch, City Engineer.
District of Columbia	Washington	September 15, noon	Plate girder bridge	Commissioners of District of Col'bia
Ontario	Centerville	September 15	Steel bridge	E. F. Hinch, Clerk of Camden Township.
Washington	Spokane	September 15, 2 P. M.	Three steel-concrete bridges	J. T. O'Brien, Sec'y Board of Public Works.
Ohio	Chillicothe	September 17, noon	Two-span steel bridge	B. H. Walker, County Surveyor.
Indiana	Indianapolis	September 17, 10 A. M.	Bridges and culverts	C. J. Clark, County Auditor.
Kansas	Wichita	September 17	Ten steel bridges	R. N. Dorr, City Clerk.
Georgia	Woodbury	September 18	Steel bridge	F. V. Biggers, Chairman Board of County Commissioners, Greenville.
Ohio	Perry	September 20, noon	54-foot steel bridge	George Feltz, Auditor, Lima.
Pennsylvania	Franklin	September 21	New bridge and improving old one	E. K. Smiley, Clerk County Com'rs
Ohio	Euclid	September 22, 11 A. M.	Steel-concrete arch	Julius C. Dorn, Clerk County Com'rs
Maryland	Greensboro	September 25, noon	Reinforced concrete bridge	Caroline County Commissioners.
Georgia	Rome	October 1	Bridge, 60-ft. span, 50-ft. trestle	J. F. Hillyer, County Clerk.
Oregon	Elk City	October 3, 10 A. M.	Rebuilding bridge approach	Ira Wade, County Clerk.
Rhode Island	Bradford	October 3, 11 A. M.	Three bridges and trestle	Wm. S. Cowles, Navy Dept., Washington, D. C.
California	Daggett	October 8	253-ft. steel bridge	Board of Supervisors.
Georgia	Powers Ferry	October 25	Three-span bridge, 465 feet long	Clerk of Commissioner of Roads, Atlanta.

Municipal Buildings

Nebraska	Grand Island	September 17, 2 P. M.	High school	H. A. Edwards, Sec'y Bd. Education.
New York	New York	September 17, 11 A. M.	Ten school buildings and alterations	C. B. J. Snyder, Supt. School Buildings.
Indiana	Bloomington	September 18, 1 P. M.	Stone and brick school	A. R. Nichols, Architect.
Ohio	Marion	September 19	Library building	J. F. Dombaugh, Sec'y Library Trustees.
District of Columbia	Washington	September 20	Fire-proof doors	Thos. Ryan, Acting Secretary.
Washington	Port Flager	September 21, 2 P. M.	Concrete floor	H. G. Millar, Quartermaster.
Ohio	Mayfield	September 22	Four room school	F. J. Wilson, Clerk, Wilson Mills.
New York	Port Totten	September 24, 2 P. M.	Barracks and stable	Capt. Geo. H. McManus, Quartermaster.
New York	Brooklyn	September 26	Machine workshop and office	William B. Ellison, Commissioner.
Tennessee	Clarksville	September 26	High School building	P. L. Harned.
Georgia	Rome	October 2	Fire-proof jail, two stories	J. B. Cantrell, Chairman of Commission.

Miscellaneous

Ohio	Cleveland	September 14, noon	Stairway over railroad tracks	A. R. Callow, Sec'y Bd. Pub. Service.
Ohio	Cleveland	September 14	Ten-ton steam road roller	A. R. Callow, Sec'y Bd. Pub. Service.
Ohio	Cincinnati	September 15, noon	Conduit system for fire-alarm wires	J. J. Mulvihill, Sec'y Bd. Pub. Serv'g.
Ohio	Cleveland	September 15, noon	Brick or concrete chimney	A. R. Callow, Sec'y Bd. Pub. Service.
New York	New York	September 18, 10 A. M.	Constructing refrigerating plant	Board of Health.
Kansas	Fort Leavenworth	September 19	Electric fire-alarm system	Capt. J. E. Normoyle, Q. M.
Delaware	Wilmington	September 24	Jetty and dock	Maj. C. A. F. Flagler, U. S. Engineer.
Manitoba	Winnipeg	September 24, 2:30 P. M.	7,500 ft. of 3 1/2-inch rubber-lined cotton hose for high pressure	C. J. Brown, City Clerk.
Tennessee	Memphis	October 4	5,000 ft. rubber cotton hose; 1,000 ft. double-ply hose, 2 1/2 inches in diameter	Board of Public Works.

STREET IMPROVEMENTS

Elgin, Ill.—Council is arranging to construct several miles of cement walks.

Highland, Park, Ill.—The City Council has ordered that Circle avenue and Waukegan street be paved with macadam.

Highwood, Ill.—Council has passed an ordinance for two miles of cement walk, also for laying several water mains.

Waukegan, Ill.—Ordinances have passed Council for laying cement sidewalks on portions of South and Maple avenues.—Address Alderman Tobin or Board of Local Improvements.

St. Paul, Minn.—Council has ordered improvement of several streets by grading, paving, sewerage, etc.

Joplin, Mo.—Resolutions have been approved to grade, sub-grade and macadamize the roadway of Fourteenth, Bird and Ivy streets.—C. W. Lyon, Mayor; Hiram Phillips, City Clerk; N. W. Van Frank, City Engineer.

Kansas City, Mo.—Plans are being considered for paving Penn Valley place. Ordinances are before the City Council for paving Grove street; also West Prospect place.

Springfield, Mo.—A portion of Campbell avenue will be paved with brick.

Silver City, N. M.—About 28,000 feet of cement and brick sidewalks are to be laid at Fort Bayard, to cost \$6,000; later the streets will be macadamized.

Akron, O.—Seven streets are to be paved; bids will shortly be invited.

Ashland, O.—Bids will be received, September 24, for bonds aggregating \$37,800, for improving Fourth, Third and Vine streets.—A. P. Black, City Clerk.

Bucyrus, O.—Council has authorized bond issue to pave Lucas street its entire length.

Cincinnati, O.—Bids will be readvertised for paving Belmont avenue with boulders; the

cost of repaving Broadway, between Court and Hunt streets, is estimated at \$8,934.—City Engineer Danenhower.

Lakewood, O.—Bids will be received, October 1, for \$1,400 street improvement bonds.—B. M. Cook, Clerk.

Lancaster, O.—Council will issue \$2,500 bonds for sidewalk improvements.

Portsmouth, O.—A resolution to improve Market street from Third to Fourth street, and Fourth street has passed Council; bids will shortly be invited; bids will be readvertised for paving Clay, West Fifth and Market streets.

Springfield, O.—Bonds, \$10,000, will be issued to repair streets; Council has also decided to construct cement walks, curbs and gutters on eleven streets and alleys.

Toledo, O.—A large number of streets and alleys will be macadamized; the city will borrow \$20,000 to construct sidewalks.—Owen Dunham, City Clerk.

Wapakoneta, O.—Bonds, \$2,750, will be sold for improving North alley.—Charles E. Fisher, City Clerk.

Xenia, O.—A committee has waited on the Board of Public Service in interest of paving Second street with macadam; it is proposed to pave 78,000 feet.—F. D. Le Sourd, Chairman, Committee.

Youngstown, O.—Bids are invited for paving Jones street.—Board of Public Service.

Zanesville, O.—An ordinance has passed to pave Linden avenue with brick and lay concrete curbing; legislation is being considered for laying vitrified brick paving and concrete curb on Maple avenue.—Neil Starkey, City Clerk.

Marshall, Tex.—The citizens have voted \$185,000 bonds for street paving and sidewalks.

Tacoma, Wash.—Plans and estimates are being prepared for concrete walks in North Tenth street and Tacoma avenue.—Commissioners of Public Works.

Huntington, W. Va.—Council is unable to decide on material for paving Eleventh street.—Address Mayor Gordon.

St. Marys, W. Va.—Bids are invited for 1,100 feet of brick paving, with stone or concrete curb, on Washington street.—J. D. Dunbar, Parkersburg, Engineer.

CONTRACTS AWARDED

Decatur, Ill.—The Granite Bituminous Company, St. Louis, Mo., will construct 25,751 square yards of paving.

Salina, Kan.—The contract for paving and curbing Santa Fe avenue has been awarded to the Kansas Bitulithic Company, of Kansas City; estimated cost, \$41,613.—A. W. Godfrey, City Clerk.

Baltimore, Md.—Warren Brothers Company has been awarded contract to lay bitulithic on four streets, for \$39,969.97; Maryland Paving Company, asphalt blocks on two streets, at \$45,929.32, and the Filbert Paving Company, sheet asphalt on two streets, at \$33,473.90.

St. Louis, Mo.—The Granite Bituminous Paving Company has been awarded a contract for 60,415 square yards of paving; with the completion of this contract the city will have 25 miles of bitulithic streets.

Newark, N. J.—The Standard Bitulithic Company, of New York, has been awarded an additional contract for 28,700 square yards of paving.

Akron, O.—Barnett & O'Marr have contract for paving Brown street, for \$5,900; E. McShafery, portion of Vine street, for \$4,184, and James Wildes, Prospect street, for \$291.

Massillon, O.—Meinhart & Curley have been awarded contract to pave West Main street, at 98 cents a square yard; total, \$11,000.

Miamisburg, O.—J. O. Shoup & Company have contract for paving Fourth and Pearl streets with Townsend block, combined curb and gutter, at \$2,100.

Middletown, O.—Christ, Eichorn is low bidder for paving, curbing and guttering a number of streets, at \$7,877.

Mt. Vernon, O.—W. H. Ralston will pave Vine street with brick, for \$28,000.

Portsmouth, O.—Samuel Monroe & Sons were awarded contract for paving John street, at \$12,952; Keely Brothers will pave Campbell avenue with Peebles block on a

concrete base, cement curb and gutter, and tar filler, for \$15,865.

Xenia, O.—The Barber Asphalt Company has been awarded contract for paving Second street, at \$48,422, and Edward Ryan for paving Green street with Athens block, at \$2,948.

Coshocton, O.—Downs & Campbell, of Canton, have contract to pave two streets with Metropolitan brick, for \$12,062.

ROADS

Popple, Minn.—Bids will be received, September 28, for \$8,000 6 per cent. road and bridge bonds.

Greenville, O.—Bids will be received, September 21, for \$21,000 4 per cent. road improvement bonds.—E. Culbertson, County Auditor.

Athens, Tenn.—Bonds, \$200,000, have been voted for building roads in McMinn County.

Amherst, Va.—The citizens have voted to issue \$80,000 bonds for macadamizing county roads.

SEWERAGE

Van Buren, Ark.—Arrangements are being made to establish sewers in the additional districts.

Bridgeport, Conn.—The Board of Aldermen is considering construction of sewers in Webster street, Jackson avenue, Madison avenue, Alice street and Connecticut avenue.

Wilmington, Del.—Sewers are to be laid in several streets. Address Secretary Christie, Street and Sewer Department.

Decatur, Ga.—The proposition to issue bonds for a sewer system carried.

Alton, Ill.—Plans are being prepared for a reinforced concrete sewer system; estimated cost, \$135,000.—E. M. Long, City Engineer.

Grand Rapids, Mich.—Sewers will shortly be constructed along Godfrey avenue; also in South Fuller and Walbridge streets.

Grand Rapids, Mich.—Bids will be received, September 17, 4 p.m., for \$104,000 ten-year coupon bonds, proceeds to be used in constructing the West Side Big Ditch.—John L. Boer, City Clerk.

Minneapolis, Minn.—Council is considering issue of \$446,000 bonds to construct a sewer system in the territory drained by the 27th street system.

St. Paul, Minn.—Plans are being considered for constructing a \$7,000 sewer in Fairview avenue.

Independence, Mo.—The legality of \$15,000 bond issue for sewers has been established by an election.

WATER SUPPLY

Arcade, N. Y.—Bonds, \$21,000, have been voted for waterworks purposes.

Asheville, N. C.—The Faragher Engineering Company, Cleveland, O., has been awarded contract to build a 5,000,000-gallon reinforced concrete reservoir for the storage of water.

Hamilton, O.—The proposition to issue \$305,000 bonds to improve the water and light plant carried.

Ironton, O.—Council has received a report on the proposed pure-water system; the estimate, including \$25,000 for cast-iron pipe, \$15,000 for suction pipe; and other items, is \$75,000.

Lakewood, O.—Bids will be received, October 1, for \$3,000 bonds for improving the water mains.—B. M. Cook, Clerk.

Lorain, O.—Two tons of lead and a large amount of 12-inch pipe are to be purchased; the Clerk will advertise for bids for completion of filter and pumping station, which will afford 6,000,000 gallons capacity and cost \$32,000.—Superintendent Roberts, Waterworks Department.

Wauseon, O.—Bids will be received, September 24, for \$20,000, 4 per cent. water bonds.—Charles H. Hodges, Clerk.

Gilmer, Tex.—The Attorney General has approved an issue of \$32,000 waterworks bonds.

LIGHTING AND ELECTRICITY

Leadville, Col.—A franchise to construct and operate an electric-light system has been granted Walter W. Davis.

Batavia, Ill.—Council will receive prices and specifications on four new boilers for the city power plant.

Belleville, Kan.—Bonds, \$20,000, have been voted for constructing an electric-light plant.

Pearisburg, Va.—The Giles County Electric Railway Company will establish an electric-light and power plant.—Charles T. Painter, President; P. M. Farrier, Secretary and Treasurer.

Kenosha, Wis.—Plans have been completed for the \$30,000 municipal lighting plant, to consist of power house, a 130-k.w. alternator and exciter, three 100-h.p. water-tube boilers, with stokers, 300 2,000-c.p. arc lamps, 300 lamp hangers with pulleys, and 2,200 iron braces.

FIRE EQUIPMENT AND SUPPLIES

San Francisco, Cal.—The Fire Commission has approved recommendation for the establishment of an auxiliary salt-water system for the business section. It is urged that cisterns holding at least 10,000 gallons be established on the various hills and that two high-power fire boats be purchased.—Fire Chief Shaughnessy.

Washington, D. C.—Chief Engineer William T. Belt recommends increase in the appropriation for the Fire Department for five new fire companies and their equipment, including fire house, to cost \$119,000, new house for No. 4 company, to cost \$23,000, and five new pieces of apparatus, including two new second-size engines, \$5,000 each, one \$4,000 aerial hook-and-ladder truck, one \$2,250 combination wagon, and one \$3,500 chemical engine, all to be placed in houses provided by the last Congress.—H. B. F. Macfarland, President, Board of Commissioners.

Washington, D. C.—The American La France Company, on recommendation of Fire Chief William T. Belt, has been awarded the contract for one fourth-size steam fire engine.—H. B. F. Macfarland, Commissioner.

Burlington, Ia.—The city plans to erect a \$25,000 central fire station.

IN THE MARKET

AT HOME

American Manufacturing Company, Atlanta, Ga., wants a 15-horsepower traction engine.

Bracksburg Power and Supply Company, Bracksburg, Va., wants a 100-horsepower gas producer and engine; also equipment for an electric-light plant of 1,000-lights' capacity.

Eastman Cotton Mills, Eastman, Ga., wants wire fencing.

Faragher Engineering Company, 53 Public Square, Cleveland, Ohio, wants a Smith or Ransome concrete mixer.

E. H. Jordan, Covington, Ga., wants laundry machinery; capacity, 150 families.

Kenefick, Hammond & Quigley Construction Company, Beaumont, Texas, wants a second-hand 25-ton-pull Lidgerwood rapid unloader with center plow and cable.

Kentucky Electric Company, Seventh and Ormsby avenue, Louisville, Ky., wants equipment for a large electric-light plant, with underground distributing conduits.

FOUNDATION OF ROADS is the subject now under most earnest investigation by Engineers throughout the World; poor foundations and good surfaces are found everywhere—result, short lived roads. THERE IS NOT ONE FOUNDATION ON THE MARKET TO-DAY THAT PROPERLY SUPPORTS THE SURFACE. The steel rail and the wooden cross tie is always the same, but the highway is a different thing; different surfaces and different foundations are required for different services. We have these different foundations; they DO properly support the surface, and, IN OTHER WORDS, they give a life to the surface that was never before even contemplated. The Nash Road, Borough of Brooklyn, N. Y. City, U.S.A.

For Machines to Drill, Blast and Test Holes and Water Wells, write "LOOMIS CO., TIFFIN, O."

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California Asphaltum Sales Agency

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JOHN BAKER, Jr., Manager

BIDS RECEIVED FOR SEWER CONSTRUCTION

Details of Lowest Bids

Length Feet	Shape and Size (Inside Dimensions)	Material (If Concrete, Specify Pro- portions of Mixture)	Thick- ness of Shell	Depth of Trench (To Bot- tom of Sewer)	Material to be Exca- vated. (Rock Hard Pan, Clay, Loam, etc.)	Ground Water to be Handled?	Kind of Paving to be Excavated and Relaid (Included in Sewer Bid?)	Price Bid per Lineal Foot	Mean of all Bids	Remarks
WINNIPEG, CANADA										
1904.	.4' 10" x 6' 3"	1:3:5 concrete.	.8"	20'	Clay			\$9.50		Wages of common labor.
1460.	.4' 6" x 6' 0"	"	.8"	18'	"			9.00		\$1.80 per day. Flush tanks, including flushing appliance, \$120.
2968.	18"	Vitrified pipe.	1 1/2"	13'-15'	"			0.85-1.00		Work done by days' labor. Cost of pipe not included.
2712.	15"	"	1 1/2"	11'-15'	"			0.75-0.85		
2299.	12"	"	1"	9'-12'	"			0.65-0.70		
EASTON, PA.										
268.	20"	Vitrified pipe.	d. s.	9'	Loamy clay			2.02	\$2.00	
1347.	36" circular.	Brick.		9'	"			5.22	5.22	
660.	5'	"		10'	"			6.87	8.35	Wages of common labor, \$1.40.
170.	3'-6" circular	"		0'	"			4.60	5.79	Catch-basin inlets, \$60 to \$80.
270.	.4' circular.	"		12'	"			4.65	7.50	
NORWOOD, OHIO										
460.	12"	Vitrified pipe.	Stand.	12'	Clay	No.	Macadam.	0.70	1.00	Wages of common labor, \$1.85.
2300.	10"	"	"	12'	"	"	6" thick.	1.00	1.10	Manhole 12' deep, \$35 each.
7000.	8"	"	"	12'	"	"	"	1.25	1.40	
MANSFIELD, OHIO.										
500.	24"	Vitrified pipe.	d. s.	7'	Clay		1.40			All prices exclusive of cement, which city furnishes.
650	20"	"	"	7'	"		1.16			
450.	18"	"	"	7'	"		1.00			Wages of common labor, \$1.75.
1340.	8"	"	Stand.	6'	"		0.35			Manholes, \$30 to \$33. Flushtanks, including flushing appliance, \$35.00.
1270.	8"	"	"	8'	"		0.41			

LOWEST BIDS FOR STREET PAVING

Square Yards	Surface Material		Foundation		Other Material		Excavation			Remarks
	Kind	Thick- ness	Kind	Thick- ness	Kind	Thick- ness	Contract Price per Sq. Yd.	Quantity Cu. Yds.	Material Price	
ASHLAND, OHIO										
3330.....	Brick.....		Gravel.....	8"	Sand.....	2"	\$1.455	2200.....	Clay.....	\$0.25
5750.....			".....	10"		2"	1.30	2350.....		0.25
MANSFIELD, OHIO										
14,000.....	Brick.....	4"	1:3:5 concrete.	4"	Sand.....	1½"	1.27	12,000.....	Clay.....	0.25..Cement furnished by the city. Joints grouted.
8,000.....	".....	4"	1:3:5 "	4"	".....	1½"	1.35	4,000.....	".....	0.30..
4,000.....	".....	4"	1:3:5 "	4"	".....	1½"	1.36	3,000.....	".....	0.27..Asphalt expansion joints at curbs and 50' intervals.
MATTOON, ILL.										
2,500.....	Brick.....	4"	Concrete.....	5"	Sand.....	1½"	1.375	1,000.....		0.25..Grout filler, 10c. per yard.
PITTSBURG, KAN.										
25,000.....	Vit'r'd brick	4"	2½"-brick on 4"- cinders.....				1.20	8,000.....	Dirt.....	Excavation included in bid.
ALTOONA, PA.										
76,986.....	Vit'r'd brick		Port. cem. conc.....	6"	Port. cem. joints.....		2.046			Prices are averages of thirty-six contracts.
65,550.....	".....		".....	6"	Pioneer asph. filler.....		2.112			

LOWEST BIDS FOR CURBS AND SIDEWALKS

[illegible]

CONVENTION NOTES

Annual Session of the American Society of Municipal Improvements at Birmingham.—This convention, which will be held at Birmingham, Ala., October 9th promises to be an unusually interesting one from present indications. The following papers are already promised, and others will undoubtedly be added to the list later:

On Street Paving; James Owen, Chairman of Committee:

"Paving and Paving Materials of the Southwest," by Walter F. Reichardt, Little Rock, Ark. "Earth Settlements in City Streets," by Horace Andrews, C. E., Albany, N. Y. "The Municipal Asphalt Plant at Hamilton, Ont.," by E. G. Barrow, City Engineer, Hamilton, Ont. "Tests of Other Wood Than Yellow Pine for Block Pavements," by F. A. Kummer, New York City.

On Sewerage and Sanitation; J. N. Hazlehurst, Chairman of Committee:

"Yellow Fever and Sanitation," by J. N. Hazlehurst, C. E., Mobile, Ala. "The Improvement of the Sanitary Condition of Gowanus Canal, Brooklyn," by Henry R. Asserson, C. E., Department of Sewers, Brooklyn, N. Y.

On Water Works and Water Supply; Julian Griggs, Chairman of Committee:

"The Waterworks of Archangel, Russia," by Ulrich E. Taupenhelm, manager. "The Cost of Cleaning and Grubbing a Reservoir Site," by Julian Griggs, C. E., Columbus, Ohio. "Recent Advances in the Purification and Softening of Public Water Supplies," illustrated with stereopticon, by George W. Fuller, New York City. "The New Orleans Waterworks," illustrated with stereopticon, by George G. Earl, General Superintendent Sewerage and Water Board, New Orleans, La.

On Garbage Disposal and Street Cleaning; T. Chalkley Hatton, Chairman of Committee:

"A Proposed System of Final Waste Disposition for the City of New York," by Howard G. Bayles, Met. Eng., New York City.

Mr. Hatton is also preparing a report upon the subject. The Committees on Municipal Franchises, on Review, and on Park Development, all expect to present interesting matter. Mr. Robert K. Davis, Hammond Building, Detroit, Chairman of the Committee on Exhibits, has been much encouraged by the applications for space in the exhibition building.

Firemen's Association of the State of New York.—The thirty-fourth annual convention was held at Jamestown, N. Y., August 21 to 24, at which discussions were held on the following topics: "Recognition Merited by Firemen," by George H. Robinson; on "Observance of Laws by Fire Companies," by S. S. Winterson; on "Legislation for the Protection of Firemen," by D. S. Mercereau; on "Politics in Fire Departments," by J. F. Wilson, Sr.; on "A Publicity Bureau for Fire Departments," by Oliver Owen, and on "The Use of Auxiliary Water Systems for Fire Purposes, and of Alarms in the Houses of All Firemen, to be Rung at the Same Time as the General Alarm," by H. A. Meade. This association has about 600 members. It maintains a Firemen's Home in which there are now fifty-six inmates.

Calendar of Meetings of Municipal and Allied Societies

September.
Municipal Civil Service Commissions of all Cities in New York State.—Under auspices of State Civil Service Commission, Albany, N. Y.

September 12-14.
Massachusetts State Firemen's Association.—Convention, Worcester.—D. A. Burt, Secretary, Taunton.

September 12-14.

New England Water Works Association.—Annual convention, Fabyan House, White Mountains.—Willard Kent, Secretary, 115 Tremont Temple, Boston, Mass.

September 13.

New Jersey State Firemen's Association.—Convention, Atlantic City, N. J.—William Extall, Secretary, 212 Halsey Street, Newark, N. J.

September 13-14.

The Mayors of the State of Illinois.—Conference to perfect an organization, Rock Island.—George McCastrin, Mayor of Rock Island, Secretary.

September 14-15.

American Public Works Association.—Annual convention, Hotel Arragon, Atlanta, Ga.—W. H. Flint, Secretary, Chattanooga, Tenn.

September 18.

Farmers' and Mechanics' Association, Westminster, Mass.—Hand Engine Muster.—A. L. Stone, Secretary.

September 18-20.

Southwestern Firemen's Association.—Convention and tournament, Monett, Mo.—P. B. McCarthy, Secretary, St. Louis, Mo.

September 26.

New Hampshire State Firemen's Association.—Convention, Franklin, N. H.—George L. Osgood, Secretary, Concord, N. H.

September 26-27.

National Association of Comptrollers and Accounting Officers.—First annual convention, Auditorium Annex, Chicago, Ill.—Howard C. Bede, Secretary, City Hall, Detroit, Mich.

September 26-28.

League of American Municipalities.—Tenth annual convention, Chicago.—John MacVicar, Secretary, Des Moines, Iowa.

October 1-6.

Pennsylvania State Firemen's Association.—Convention, Gettysburg, Pa.

October 5.

Brockton Fair Association.—Hand Engine Muster.

October 3-5.

Kansas State Firemen's Association.—Convention and Tournament, Lawrence.—Walter Puckey, Secretary, Clay Center.

October 9.

American Society of Municipal Improvements.—Annual convention, Birmingham, Ala.—George W. Tillson, Secretary, Municipal Building, Brooklyn, N. Y.

October 9.

West Virginia Board of Trade, Charleston.—R. B. Naylor, Secretary, Wheeling.

October 9-12.

International Association of Fire Engineers.—Annual convention, Dallas, Tex.—Jas. McFall, Secretary, Roanoke, Va.

October 11.

Veteran Volunteer Firemen's Association.—Grand parade.—Neil McLeod, Jr., Secretary, 1213 Grand street, Elizabeth.

October 15-19.

American Street and Interurban Railway Association.—Annual convention, Columbus, Ohio.—B. V. Swenson, Secretary, 30 Wall street, New York City.

October 16-18.

Southern New York Volunteer Firemen's Association.—Convention, Flushing, L. I.—J. H. Downing, Secretary, 130 Fleet street, Brooklyn, N. Y.

October 29.

New Jersey State Firemen's Mutual Benevolent Association.—Convention, Atlantic City, N. J.—R. D. Bender, Secretary, 212 Halsey street, Newark, N. J.

November 13-15.

Southern Immigration and Quarantine Conference, Nashville, Tenn.

November 14-16.

International Congress on Tuberculosis.—New York City. (The principal purpose of the congress will be that of urging preventive legislation against tuberculosis, the adoption of municipal and government sanitariums and discussion of all the questions involved.)

November 15.

National Society for the Protection of Public Health and Morals.—To be organized at Hudson Theater, New York City.

November 15-16.

Deep Waterway Convention, St. Louis, Mo.—Hon. Henry T. Rainey, Secretary, Carrollton, Ill.

November 15-17.

Mississippi State Firemen.—Convention to organize an Association, Hattiesburg.—Chief A. F. Potter, Secretary, Hattiesburg, Miss.

January.

American Institute of Social Service.—Exposition, New York City.—Dr. William H. Tolman, Director, 287 Fourth avenue, New York.

WHO'S WHO
IN MUNICIPAL WORK

DOW, Allan Wade.—Born in New York, August 24, 1866, he graduated from the School of Mines of Columbia College in 1888. From then until 1894 he was assistant chemist to the Barber Asphalt Paving Company. From 1894 to 1906 he was Chemist to the Engineering Department and Inspector of Asphalt and Cement for the District of Columbia. He has written many articles on the chemistry and physical properties of asphalt and asphalt pavements. At present in private practice in New York City. Residence, New York.

HERING, Rudolph.—Born in Philadelphia, February 26, 1847; he graduated from the Dresden Polytechnic (Germany) in 1867. From then until 1871 he was assistant engineer on park work in Prospect Park, Brooklyn, and in Fairmount Park Philadelphia. After a year spent as astronomer in Yellowstone National Park he became Assistant City Engineer of Philadelphia, which position he held until 1880, since which time he has been in private practice. Among the many important problems upon which he has been engaged as consulting engineer are the investigation for the new water supply of Philadelphia, in 1883-6; the Chicago drainage and water supply (chief engineer of the commission), in 1886-8; the sewerage and water supply of the District of Columbia, also of New Orleans; the sewerage of Honolulu. He was a member of the Burr-Hering-Fillman Commission on Additional Water Supply for the City of New York. Residence, New York.

ROSEWATER, Andrew.—Civil and sanitary engineer. Born in Bohemia, October 31, 1848. Educated in common and high schools, Cleveland, Ohio. Became flagman in engineering corps, Union Pacific Railroad, exploration and surveys, 1864. Later in other engineering positions, same road. Assistant City Engineer, Omaha, Neb., 1868-70; City Engineer, 1870-75. Manager and temporary editor Omaha Bee, 1876-77. Engineer in charge construction, Omaha and Northwestern Railway, 1878-80. Resident engineer, Omaha Waterworks Company, 1880-81. City Engineer, Omaha, 1881-87, and from 1887 to 1891 consulting and designing engineer of sewage for twenty-five cities. President Electrical Subway Commission of Washington, 1891-02. Consulting engineer for cities, Colorado, South Dakota, etc. Since 1897 City Engineer, Omaha; President, Board of Public Works, etc. Residence, Omaha, Neb.

WHINERY, Samuel.—Born near Salem, Ohio, November 20, 1845. Common school education. Taught school, 1866-67. Engaged in location and construction of railroads and other engineering works, 1868-84, including two years, 1878-80, as U. S. Assistant Engineer on Improvement of Tennessee River at Mussel Shoals; also other Government works. Vice-president and general manager Warren-Scharf Asphalt Paving Company, July, 1887, to August, 1900. President same, August, 1900. Resigned, January, 1901, Member (director 1891, vice-president 1892-94) American Society Civil Engineers; member American Society Mechanical Engineers and American Institute of Mining Engineers. Has contributed numerous papers on engineering subjects to societies and magazines. Residence, East Orange, N. J.

LEGAL NEWS

A Summary and Notes of Recent Decisions
—Rulings of Municipal Interest

Public Service Corporation

People vs. Atchison, Topeka & Santa Fe Ry. Co.—Local taxing authorities have no jurisdiction over franchises, and a tax levied by local assessors on the right to operate toll wagon ways cannot be sustained. Where a combined railroad and wagon bridge has been assessed as one complete structure by the State Board of Equalization and the taxes paid, even if the bridge ought to have been divided for taxing purposes, yet it cannot afterwards be assessed as omitted property.—County Court, Hancock, Ill.

Must Keep Cars Clean

City of Chicago vs. Chicago Union Traction Co.—Suit brought by the city because of the filthy condition of the street cars was decided in favor of the city. A penalty of \$100 was mentioned in the verdict.—District Court, Chicago, Ill.

Sewage Disposal Tank

American Sewage Disposal Co. vs. City of Pawtucket, R. I.—The petition of the complainant for permission to apply to the Circuit Court for leave to reopen the case has been denied. The city of Pawtucket used a patent sewage tank, and the American Sewage Company brought suit on the ground that the use of the tank was an infringement, and this decision was affirmed by the Court of Appeals. The petition to reopen the case was based on the ground of newly discovered evidence.—U. S. Circuit Court of Appeals, Pawtucket, R. I.

Personal Injuries—Sewer Trap

Bissell vs. District of Columbia.—In an action for personal injuries sustained by falling through the opening of a sewer-trap, where all that appeared from the plaintiff's evidence was that while walking along a street he stepped on the edge of the lid of one of these sewer-traps located in the tree space outside the paved portion of the sidewalk and the lid tipped and he went down into the opening and was injured, and that on examining the place the next day he found that the lid was a thin sheet of iron fitting into a groove which was full of dirt and the lid itself was worn and rusty, held that the evidence was insufficient to show clearly either that the sewer-trap was defective or that if there was a defect it was one of which the municipal authorities were charged with constructive notice, and the direction of a verdict for defendant held proper. The refusal by the trial court of an offer by the plaintiff to prove by a witness produced by him that the witness had examined the cover of the trap in question four days after the accident and found it defective and worn, "and to establish by said witness its condition at the time of and before the accident by proving what its condition was a week afterward," held not reversible error.—D. C. Court of Appeals.

BOOK REVIEWS

Garbage Crematories in America.—By William Mayo Venable. John Wiley & Sons, Publishers, New York.—The author "is aware that connection with a company actively engaged in building crematories may be regarded by some as disqualifying him from presenting these matters with candor, and therefore acknowledges such connection, that readers, thus forewarned, may judge whether or not the following statements are the result of a narrow-spirited promotion of self-interest." This quotation from page 12 is a frank avowal of the author's connection with the Sanitary Engineering Company, one of the four principal companies now building crematories in this country. His treatment seems to be impartial so far as discrimination between crematories is concerned; but as between cremating and utilizing his prejudice for the former is evident. The most valuable parts of the book are the description of most of the designs of crematories which have been erected in this country, and the list of patents for the same.

For purposes of description the author divides crematories into five classes: First, those in which there is no preliminary drying; second, those with but little preliminary drying on a separate hearth; third, those which contain separate fuel fires, chiefly required for drying wet garbage; fourth, like third, except that the drying fires are themselves fed with dried garbage; fifth, those in which gases of combustion from burning garbage in one cell are passed through other cells to dry garbage therein. The grates he classes as of solid cast iron; solid fire clay; hollow iron cooled by water circulating through them, and hollow iron cooled by air; the heated air or water being used for feeding either draft or steam boilers. The author thinks "separate collection of garbage, refuse, and ashes is preferable, from every point of view, whether the final disposition is to be burning of all or only a part of them; that the garbage can be more economically burned in one furnace, the refuse in another, and the cinders in another, provided the quantities are large; and that the problem of reburning cinders should be considered on its own merits, without being joined to that of destroying other refuse;" arguing that the presence of even 30 per cent. of combustible coal does not often make the burning of ashes profitable. He denies "the oft-repeated statement that American methods of disposal are less economical than British," giving his arguments; claims that while, "in a crematory properly constructed and operated, there is always heat available for raising steam," steam production is not always profitable, having seriously objectionable features, but may be so under favorable conditions. In his opinion, "the fault for most failures lies at the doors of the municipal authorities, on one or other of the following scores: (a) Acceptance of an untried installation designed by some local party without substantial experience or attainments in the line of this work. (b) Contracting, in good faith, for an unsuitable installation, because of ignorance, by the purchaser, of what the conditions to be met really are. (c) Determination by

the municipal authorities to award work to contractors who will pay the largest sum to those who have the power to determine who shall secure the contract." The book closes with valuable suggestions to those proposing to acquire a plant or plants for disposing of refuse; and to such we recommend it as containing much information to be found in no similar volume.

Street's Newspaper Directory for 1906.—London, England. G. Street & Co., Limited. Cloth 8½x11 inches, 444 pages. A remarkably useful contribution to the newspaper directory literature of the world. The first things that strike the reader are, the very bold type, excellent quality of paper, substantial binding, and the general durability of the book. In addition there are furnished capital newspaper maps of England and Wales; also of Scotland and Ireland. The usual disfiguring advertisements and bold faced types among reading matter, are, we are glad to say, conspicuous by their absence in this volume, while the readiness of reference is a pleasure. A complete alphabetical list of newspapers, magazines, etc., is given. These are again classified into counties, and also under their respective denominational headings. Great Britain and the Britain beyond the seas; are both dealt with in a full and representative manner. Nothing could be better of its kind. Supplied by the Municipal Journal and Engineer, at \$3 postpaid.

INCORPORATIONS

Ash Meadows Water Co., Portland, Me. Water powers. Capital, \$5,000,000. President, J. C. Kipp, Scranton, Pa.; treasurer, E. H. Schafer, Scranton, Pa.; clerk, Levi Turner, Portland, Me.

Boston Construction & Supply Co., Boston, Mass. Contractors. Capital, \$1,000. President and clerk, Grenville S. McFarland, 15 State street, Boston, Mass.; treasurer, James A. Halloran, Norwood, Mass.

Citizens' Railway & Light Co., Fort Worth, Tex. Capital, \$1,000,000. Incorporators: W. O. Allen, Fostoria, Ohio; Carey B. Close, Toledo, Ohio; J. R. Nutt and E. W. Cristy, Cleveland, Ohio.

De Kalb, Fuel, Light & Power Co., Capital, \$100,000. Incorporators: John Ross McCulloch, and others.

Delaware & Otsego County Independent Toll Line Co., Telephone line. Capital, \$15,000. Incorporators: Orra L. Tipple, Schenectady, N. Y.; R. P. Stoddard and Harry D. Arbuckle, Oneonta, N. Y., and others.

East Greenville Light & Fuel Co., 419 Market street, Camden, N. J.; acetylene gas plants for generation of light, heat and power by gas, etc. Capital, \$25,000. Incorporators: Everett Cummins, John A. MacPeak, F. R. Hansell, all as above.

Missouri Light & Water Co., Spokane, Wash. Capital, \$400,000. Incorporators: A. H. Wetthey, W. M. Bickford, J. K. Heslet, of Butte, and C. E. McBroom, of Spokane.

People's Sewer Co., Aurora, Mo. Capital, \$3,000. Incorporators: J. B. McGuffin, W. H. Scott, T. A. Miller, and others.

Salem Light, Heat & Power Co., Portland, Me. Heat and power station. Capital, \$100,000. President, W. Dubois Pulver; treasurer, W. W. Cole, both of Salem Depot, N. H.; clerk, A. W. Tolman, Portland, Me.

Sandusky Portland Cement Co., Kittery, Me. General quarrying. Capital, \$160,000. President, A. W. Knowles, Boston, Mass.; treasurer and clerk, J. W. Hawes, Kittery, Me.

The Fred Christensen Construction Co., 226 Madison avenue, Perth Amboy, N. J. Construct roads, buildings, dock-piers, etc. Capital, \$10,000. Incorporators: Fred Christensen, as above; Mads Jochumsen, 214 Madison avenue; Peter A. Peterson, 145 High street, Perth Amboy, N. J.

The Gainesville Gas & Electric Co., Gainesville, Tex. Capital, \$250,000. Incorporators: G. M. Moran, F. McKennie, and others.

TRADE NOTES

BLOTTERS.—The Stanley-G. I. Electric Manufacturing Company, Pittsfield, Mass., issues a series of desk blotters, each a reminder of one of its specialties and the bulletin in which it is described.

ELECTRICAL DEVICES.—The Edison People, a booklet published by the New York Edison Company, 55 Duane street, New York City, illustrates in an amusing way the conveniences of electricity, and the advantages of electrical devices in domestic service are demonstrated in a light vein.

FIREPROOFING SYSTEM.—The Berger Manufacturing Company, Canton, O., has issued a catalogue illustrating fully the uses of its "Prong-Locks" system of steel studding and furring for fireproof walls, partitions and ceiling. Any kind of expanded metal or wire lath can be hung on these little prongs, which are then clinched with a hammer. The illustrations show every detail of the system and the methods in which it may be used. Some illustrations in the back of the book show the good record of the system in the San Francisco fire. A neat folder, imitating charcoal iron in appearance, shows the Berger tag which is attached to the re-hammered charcoal iron goods.

FOUNTAINS.—The Jordan L. Mott Iron Works, New York City, issues a royal folio volume of 130 pages illustrating its line of fountains. A short introduction explains the principles on which a fountain should be selected in reference to the quantity and pressure of water available.

RUBBER TIRES.—The Firestone Tire and Rubber Company, Akron, Ohio, entertained its branch managers and salesmen at an enthusiastic convention at the home office on the day succeeding the stockholders' annual meeting. The Firestone company is an enterprise owned and conducted by men under middle age. Last year's officers were reelected by the stockholders.

STREET LIGHTING APPLIANCES.—The Century Light and Power Company, 35 Warren street, New York City, issues a booklet describing its attachments, capable of adjustment to almost any street lamp by means of which an open flame is changed into an incandescent lamp. The advantages claimed for the "Century" attachment are that they permit the attendant to clean the globes at one operation, as he may remove the mantle and guard and hang it up while working; in case of injury the entire lighting parts may be quickly removed and replaced; there are no delicate parts to get out of order and the mantle is guarded at all times; the lamp cannot be injured in cleaning, as the mechanism has to be removed; there are no glass chimneys to break; lighting and extinguishing can be done from the sidewalk.




Four-way adjustable street signs with reinforced steel tube posts and sheet metal perforated signs

These signs are indestructible by the elements, do not rust or corrode, and can be read from a long distance and at any angle you approach them. Adjustable to the intersections, will carry as many signs as are needed for additional intersections. Write for catalogue. We contract with municipalities for signs and house numbering.

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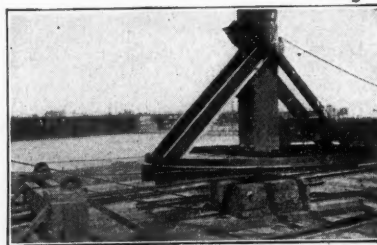
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Note.—The city of Wilmington, Delaware, has subscribed for fourteen yearly subscriptions to the MUNICIPAL JOURNAL AND ENGINEER.

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PATENT CLAIMS

828,384.—Voting-Machine. Christ Christensen, Indianapolis, Ind., assignor, by mesne assignments, to Columbia Voting Machine Company, Indianapolis, Ind., a corporation of Indiana. Serial No. 180,627.

In a voting-machine, the combination, with a series of voting-keys completely rotatable for each voting operation, and counters operated thereby, of a plurality of operating-heads, one for each key, each of said heads carrying a finger-lever projecting transversely from the head, and each provided with a surface adapted to be engaged by the finger of a voter, means for arranging the finger-levers of a series of keys in substantial parallelism out of alignment with the key series, the arrangement being such that a series of voting-keys may be successively actuated by a voter's finger carried transversely across the series of keys into successive engagement with the extended finger-levers, and means for subsequently simultaneously continuing the movement of the voted keys.

828,816.—Voting-Machine. William Glenn, Mount Vernon, Iowa. Serial No. 269,091.

In a voting-machine having offices arranged in plural-candidate rows, a series of registers spaced according to candidates in said rows, and correspondingly-spaced indicators adapted for movement to voting positions lengthwise of said rows each independently shiftable to different positions for different parties or candidates.

828,818.—Building-Wall and Block for Same. Edwin A. Hood and Frank L. Fuller, Pierre, S. D. Serial No. 283,708.

In a plastic block for wall construction, a row of rectangular vertical air-passages, webs separating the same, a second row of rectangular vertical air-passages, webs separating the same, the upper surfaces of which are concave to form horizontal air-passages in the wall, the sides of said webs being also concave to form vertical air-passages in the wall, and a partition separating the two rows of air-passages.

829,882.—Excavating-machine. Ezra A. Mathers, Philadelphia, Pa. Serial No. 291,320.

An excavating-machine comprising a main frame mounted upon traction-wheels and having a rotary digger supported thereon upon a pivoted frame, said pivoted frame carrying said rotary digger and the mechanism for conveying the material away from the machine, and means for operating said digger and raising and lowering said frame, substantially as set forth.

829,903.—Machine for Handling Material for Tunnel-arch Construction. Edward G. Williams and Elmer H. Brown, Washington, D. C. Serial No. 309,683.

In a machine for handling material for tunnel-arch construction, a conveyor having its discharge and disposed in a substantially horizontal plane, a cantilever as described for supporting the said end, and means for vertically adjusting the said end while maintaining it in such plane.

Proposals

Coupon Bonds

Proposal for City of Lebanon Coupon Bonds

The City of Lebanon, Pa., offers for sale an issue of City of Lebanon Coupon Bonds, in the total amount of \$20,000 of the denomination of \$250 each, said bonds being 80 in number. They are dated April 20, 1906, and bear interest at the rate of three and one-half per centum per annum, payable semi-annually, and are free from taxes. Interest will run from October 1st, 1906, and the coupon for interest to said October 1st, 1906, will be detached before delivery, the bonds not being in the hands of holders during said first interest period. They mature in equal amounts by their terms on the 2d days of April, 1908-1910-1912-1914 and 1916. They are redeemable at the option of the City of Lebanon on the 2d days of April, 1908-1910-1912 or 1914.

Sealed bids will be received until Friday, September 14th, 1906, at 12 o'clock noon.

Bids must be addressed and delivered to I. L. Beckley, City Clerk.

Bids will be received for any or all of said bonds.

All bids must be accompanied by a certified check for ten per cent. of the par value of the bonds bid for, payable to the City Treasurer, as conditional that bonds allotted be paid in full at the office of the City Treasurer, not later than October 1st, 1906.

Bids will be opened at City Hall by the undersigned Committee on Friday, September 14, 1906, at 2 P. M.

The right to reject any or all bids is reserved.
J. D. ADAMS,
Chairman Finance Committee of Council,
Lebanon, Pa.

Notice to Contractors

Sealed proposals for the construction of a water supply system for the City of Lockport, Niagara County, State of New York, will be received by the Common Council, at the office of the City Clerk in the City of Lockport, until eight (8) o'clock P. M., Eastern standard time, on Monday, October eighth (8th) nineteen hundred and six (1906).

The proposals must be addressed to the Common Council of the City of Lockport, and endorsed.

PROPOSAL FOR WATER SUPPLY SYSTEM

The amount of work to be done is shown upon maps and plans, and the character of the work is stated in the specifications accompanying the same; on file in the office of City Clerk in the City Building at Lockport, N. Y., and also on file in the office of Charles A. Hague, Consulting Engineer, 52 Broadway, New York City.

The Divisions of the work are as follows:
An inlet crib in the Niagara River.
An inlet pipe from the crib to the shore.
A pump well connected to the inlet pipe at the shore end.

Pumping station buildings including machinery foundations. Steam pumping machinery and boilers in place ready for service. Electric Pumping machinery, complete ready for service.

A force main from Niagara River to the City of Lockport.

A steel stand pipe in the City of Lockport. Proposals will also be received at the same time and place for a distributing main from the stand pipe to Main and Buffalo streets.

Any and all persons intending to bid upon this work are required to examine the several locations before submitting proposals.

Proposals may be made on all or any portion of the work.

Each proposal must be accompanied by a certified check upon a bank in the City of Lockport, for an amount equal to at least five per cent. of the amount of the bid, made payable to the City of Lockport, as a guarantee that the party proposing, if the contract be let to him or them upon his or their proposition, will, within five days after being notified of such award, enter into contract for the performance of such work.

The city reserves the right and privilege of rejecting any and all bids in the interest of the City of Lockport.

By order of the Common Council of the City of Lockport, County of Niagara, State of New York.

HOWARD M. WITBECK,

Mayor.

E. S. BENNETT,
City Clerk.

Pumping Engine

Sealed bids will be received by the Trustees for the Water Works and Improvement Bonds of the City of Jacksonville, Florida, until 3 P. M., October 4, 1906, for furnishing and erecting complete on foundation provided, one horizontal compound or triple expansion condensing engine, together with all appurtenances of eight million capacity in twenty-four hours against a total dynamic head of 170 feet when pumping into mains for domestic use, and able to pump the same amount against a dynamic head of 270 feet for fire service steam pressure at the throttle 145 pounds.

For specifications and other information apply to R. N. Ellis, C. E., Superintendent, Jacksonville, Florida. Bids must be enclosed in a sealed envelope plainly marked "Bids for Pumping Engine," and addressed to the Chairman of the Board. The Board reserves the right to reject any or all bids.

B. F. DILLON, Chairman.

Paving

NOTICE TO CONTRACTORS

Sealed proposals will be received by the undersigned Improvement Board for the City of Chickasha, Indian Territory, until 2:30 o'clock P. M., Thursday, September 13, 1906, for paving six blocks of Chickasha Avenue. The surface to be covered is approximately 18,893 square yards.

Applications for plans and specifications must be accompanied by certified check for Ten Dollars (\$10.00), or cash; and all bids must be accompanied by a certified check for Two Thousand Dollars (\$2,000.00).

Plans and specifications may be seen at the office of W. C. Burke, City Engineer, Oklahoma City, or at the office of City Engineer, Chickasha, Indian Territory.

B. B. BRIDGES,
H. B. JOHNSON,
D. D. SAYER,
Improvement Board.

Brick Paving

Sealed bids will be received at the office of the Mayor of Waycross, Georgia, up to 3 P. M., September 22, 1906, for the construction of brick pavement, the estimated amount of work being as follows:

Grading approximate 16,750 square yards.
Stone curbing, 6"x18"—6,000 lineal feet.
Brick paving, 16,750 square yards.

The delivery of said paving brick or blocks and stone curbing to begin within thirty days from date of contract, and entire work to be completed in six months.

Bids must state price per cubic yard for excavation price per lineal foot for granite curbing, and price per square yard for paving.

All bidders must submit samples of brick, to be used in paving, to the City Engineer. Each bid must be accompanied by cash or certified check in the sum of 5 per cent. of the total contract price.

Bids to close at 3 P. M., September 22, 1906.

A. M. KNIGHT, Mayor.

Waycross, Ga.

Sidewalk and Curb

Sealed proposals will be received by the Mayor, Recorder, Aldermen and Common Councilmen of Dover, New Jersey, for the construction of 1,900 feet more or less, of sidewalk, curb and gutter. Successful bidder will be required to furnish bond in the amount of \$1,000, that work will be completed within forty (40) days after contract is awarded. Printed copy of specifications may be obtained by applying to the Town Clerk. All bids must be delivered to Alderman Robert F. Jenkins, Chairman of the Street Committee, by twelve o'clock noon of the 17th day of September, 1906. The Mayor, Recorder, Aldermen and Common Councilmen of Dover reserve the right to reject any or all bids.

F. W. E. MINDERMANN, Town Clerk.

Box 711, Dover, New Jersey, August 22, 1906.

Lighting of Streets

Office of the Mayor,
Anniston, Alabama, July 17, 1906.

BIDS WANTED

Sealed proposals, in duplicate, will be received at this office until 12 o'clock, noon, September 20, 1906, for furnishing a minimum of one hundred (100) electric arc lights, to be located under the direction of the Mayor and City Council, on the streets of Anniston, maintaining same and supplying current for the lighting thereof nightly until 10 o'clock P. M., and during all dark hours after said hour, for terms of ten, twenty and thirty years, beginning July 1, 1908. Consumption of electric current at the arc of said lamps must be given, and in all bids must be given a bid for lamps consuming 450 watts at the lamp terminals. The award of this contract will carry with it a franchise for the privilege of supplying electric current for all purposes to corporations and private citizens, and rates at which said current will be sold must be made a part of each proposition. A certified check on a responsible bank for one thousand (\$1,000) dollars must accompany each bid as a guarantee that a contract under \$15,000 bond, will be entered into within thirty days after the award thereof, for the purpose of carrying out the terms of the contract. The city reserves the right to reject any and all bids.

THOMAS E. KILBY,

Mayor.

Storm Sewers

Lake City, S. C.

Sealed proposals will be received by the Commissioners of Public Works for the Town of Lake City, S. C., until Thursday, September 20, at 12 noon, for the installation of a system of storm sewers, including, approximately, 2,800 feet of brick, or concrete, sewer, 30 in. to 64 in.; 4,000 feet of terra-cotta pipe, 16 in. to 27 in.; 54 catch basins, 4 feet to 10 feet deep.

A certified check for Five Hundred Dollars to accompany each bid; and the amount of bond required will be Seven Thousand Five Hundred Dollars.

Plans and specifications may be obtained by application to the Engineer.

M. D. NESMITH, Chairman.

CHAS. C. WILSON,
Consulting Engineer,
Columbia, S. C.

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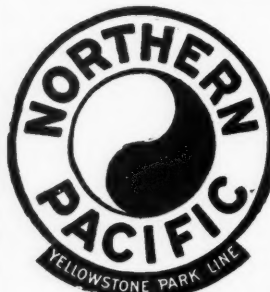
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